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CONVENTIONAL AMMUNITION UNIT OPERATIONS

CONTENTS

Page

PREFACE vi

INTRODUCTION viii
AirLand Battle viii
Threat ix

CHAPTER 1. ORDNANCE AMMUNITION UNITS 1-1

Conventional Ammunition Ordnance Companies 1-1
Ordnance Company, Ammunition, Conventional, General Support (TOE 09488L000) 1-1
Ordnance Company, Ammunition (MOADS), Direct Support (TOE 09483L000) 1-2
Organizational Structure 1-4

Wartime Host-Nation Support Ammunition Units 1-6
Ordnance Battalion, Ammunition (WHNS) (TOE 09574LA00) 1-7
Ordnance Company, Ammunition (WHNS) (TOE 09574LB00) 1-7
Ammunition Accountability Team (WHNS) 1-9

Role of the Conventional Ammunition Unit 1-9
Sustainment 1-9
Training 1-10

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Explosive Ordnance Disposal Units 1-11
Mission 1-11
Organization 1-11

CHAPTER 2. WAR/CONTINGENCY AMMUNITION FIELD FACILITIES 2-1

Ammunition Storage and Supply Facilities 2-1
Theater Storage Area 2-1
Corps Storage Area 2-2
Ammunition Supply Point 2-2
Ammunition Transfer Point 2-2

Storage Areas 2-3
Field Storage Area 2-3
Fixed-Site Storage Area 2-4
Semifixed Storage Area 2-4

Site Selection 2-4
General Considerations 2-4
Tactical Considerations 2-4

Storage Area Plan 2-5

Area Layout Plan 2-6
General Considerations 2-6
Tactical Considerations 2-6
Planning Considerations 2-6
Layout Considerations 2-7

CHAPTER 3. CONTINGENCY OPERATIONS PLANNING, TRANSITION TO WCTO, AND POST-WCTO TRANSITION 3-1

War and Contingencies 3-1
Planning Contingency Operations 3-2
Standing Operating Procedures 3-2
Prepackaging 3-3
Transportation 3-3
Retrograde 3-3

Transition to WCTO 3-3

Post-WCTO Transition 3-4

CHAPTER 4. WAR/CONTINGENCY TACTICAL OPERATIONS 4-1

Background 4-1

Tactical Unit Movement 4-2
Planning 4-2
Reconnaissance 4-2
Area Preparation 4-2
Set Up the Area 4-3
Close Out the Move 4-3

Communications 4-3
Needs and Media 4-3
Responsibilities 4-3
Methods of Communication 4-7
Communications-Electronics Operation Instructions 4-7
Security 4-7

Unit Defense and Damage Control 4-7
Unit Defense 4-7
Damage Control 4-8

Host-Nation Support 4-9
Recruiting Host-Nation Civilian Support Labor 4-9
Using Host-Nation Civilian Support Labor 4-9

Ammunition Stock Accounting System 4-10
Standard Army Ammunition System 4-10
Ammunition Stock Accounting Records 4-11

CHAPTER 5. WAR/CONTINGENCY AMMUNITION STORAGE OPERATIONS 5-1

Ammunition Stacking 5-1
Dunnage 5-1
Stacks 5-2
Pallets 5-2
Lot Number Segregation 5-2

Maintenance and Surveillance Operations 5-2
Maintenance Operations 5-2
Surveillance Operations 5-3
Guided Missile and Large Rocket Inspection 5-5
Surveillance Records and Reports 5-5
Destruction Plan 5-6

Unserviceable Ammunition Storage 5-6

Suspended Ammunition Storage 5-6

Captured Enemy Ammunition Storage 5-7

Salvage and Packaging Materials Storage 5-7

Chemical Munitions Storage 5-8

Rewarehousing 5-9

Night Operations 5-9

Sling-Out Operations 5-9

CHAPTER 6. WAR/CONTINGENCY TACTICAL AMMUNITION SUPPLY OPERATIONS 6-1

Receipts 6-1
Planning 6-1
Transport Inspection 6-2
Storage 6-2

Turn-Ins 6-3

Issues 6-3
Authentication 6-3
Documentation 6-4
Stock Selection 6-4
Transport Inspection 6-4
Vehicle Loading 6-4
Verification 6-5

Shipments 6-5
Planning 6-5
Liaison with Local Transportation Agencies 6-6
Shipping Regulations 6-6
Transport Inspection 6-6
Trailer Transfer Points 6-6
Types of Shipments 6-6
Shipping Documentation 6-7

APPENDIX A. PALLETIZED LOAD SYSTEM A-1

APPENDIX B. COMMANDER'S CHECKLISTS B-1

Administrative Checklist B-1

Operations Checklist B-1

Records and Reports Checklist B-2

Storage, Issue, and Receipt Checklist B-2

Inspection and Classification Checklist B-2

Maintenance Checklist B-2

Safety and Security Checklist B-3

Stand-Down Checklist B-3

APPENDIX C. AMMUNITION SUPPORT IN AN NBC ENVIRONMENT C-1

NBC Protection C-1

Contamination Avoidance C-1

Ammunition Resupply C-2

Unit Standing Operating Procedures C-2

APPENDIX D. CARE AND PRESERVATION OF AMMUNITION AT THE ASP LEVEL D-1

Temporary Storage D-1

Inspection D-1

Repair or Replace Packaging D-3

Palletize Boxed Ammunition D-3

Process and Destroy Ammunition and Scrap Material D-3

APPENDIX E. SAFETY E-1

Safety Levels E-1
Command E-1
Leader E-1
Individual E-1

Unit Safety Program E-2

Areas of Concern E-2
Ammunition and Explosives E-2
Unexploded Ordnance E-3
Equipment E-4
Maintenance Operations E-6

Risk Assessment and Management E-6

Reports of Ammunition and Explosive Malfunctions E-6

Fire Plan E-7

Accident/Incident Control Plan E-7

GLOSSARY Glossary-1

REFERENCES References-1

Sources Used References-1

Documents Needed References-2
Joint and Multiservice Publications References-2
Army Publications References-3
Nonmilitary Publications References-6

Readings Recommended References-6
Joint and Multiservice Publications References-6
Army Publications References-6

INDEX Index-1

PREFACE

FM 9-38 follows the sequence of ammunition support from peacetime to mobilization to a war or contingency tactical operation (WCTO), and then back. Specifically, it describes ammunition organizations, contingency planning, transition to a WCTO theater, and post-war transition. The guidelines in this field manual (FM) are generic. They are a starting point to be applied to each specific situation.

FM 9-38 provides guidelines for unit commanders, platoon leaders, section chiefs, and other supervisory personnel on conventional ammunition support operations at the direct support (DS) and general support (GS) levels during peacetime, mobilization, and WCTO. This manual also provides guidelines for WCTO sustainment. It may be used to train, plan, and conduct Class V (ammunition) support missions.

The commander in chief of the armed forces provides guidelines to the force structure or theater commander for establishing the date and time when peacetime regulatory procedures will convert to WCTO implementation procedures.

FM 9-38 discusses several doctrinal changes. One is the Maneuver-Oriented Ammunition Distribution System (MOADS) and MOADS enhanced by the palletized load system (PLS), or MOADS-PLS, in the conventional ammunition support structure. Under MOADS, the DS ammunition company, organized under the L-series table(s) of organization and equipment (TOE), can operate up to three ammunition supply points (ASPs) and provide personnel and equipment for an ammunition transfer point (ATP). Along with MOADS, new concepts affecting conventional ammunition unit operations are introduced in this manual. These include the ATP operated by the DS ammunition company, combat configured loads (CCLs), and corps support group (CSG) and corps support battalion (CSB) support concepts. CCLs are palletized, prepackaged loads of ammunition tailored to the needs of a using unit. CCLs are transported on special PLS transports with self-contained loading and unloading equipment. Together, all of these features make MOADS an operational concept.

This FM provides guidance on the change in distributing binary chemical munitions (BCMs). BCMs now go through conventional ammunition channels. Doctrinal changes include handling, storage, and assembly requirements for BCMs as well as safety and security requirements. Another doctrinal change discussed is wartime host-nation support (WHNS). WHNS is generally limited to GS operations. Cellular logistics teams (CLTs) are organized to manage WHNS operations.

Finally, FM 9-38 describes WCTO ammunition support doctrine. Class V needs for each theater are unique. The doctrinal support structure described in this FM can be adapted to meet the mission, enemy, terrain, troops, and time available (METT-T) requirements for varying geographical and political situations.

Rear operations doctrine is evolving. See FM 71-100, FM 100-15, FM 100-5, the echelons-above-corps (EAC) portion of FM 90-14, and low-intensity conflict (LIC) doctrine in FM 100-10. These manuals use current terminology.

Provisions of this FM are subject to the following international standardization agreements (STANAGs):

- STANAG-2034 (Edition 2), *Land Forces Procedures for Allied Supply Transactions*
- STANAG-2135 (Edition 3), *Procedures for Emergency Logistics Assistance*
- STANAG-2827 (Edition 2), *Materiels Handling in the Field*
- STANAG-2828 (Edition 3), *Military Packaging and Containerization*
- STANAG-2829 (Edition 2), *Materiel Handling Equipment*
- STANAG-2834 (Edition 1), *Operation of EOD Technical Information Center*
- STANAG-2928 (Edition 2), *Land Forces Ammunition Interchangeability Catalog*
- STANAG-2961 (Edition 1), *Classes of Supply of NATO Land Forces*

These agreements are not intended for worldwide use. They are implemented only with host nations with whom the agreements have been ratified.

The proponent of this publication is Headquarters, United States Army Training and Doctrine Command (HQ TRADOC). Send comments and recommendations on DA Form 2028 directly to Commandant, United States Army Ordnance Missile and Munitions Center and School, Redstone Arsenal, Alabama 35897-6500.

INTRODUCTION

The ammunition unit's role under AirLand Battle (ALB) doctrine encompasses five key logistical functions: sustain, arm, fuel, fix, and move the supported force. The emphasis is placed on arming.

AIRLAND BATTLE

ALB doctrine establishes a close working relationship between air and land forces in achieving strategic and tactical objectives. Its operational concept is based on seizing land, retaining the initiative, and employing aggressive offensive action to defeat enemy forces. Commanders strive to place enemy forces off balance by engaging them when and where they least expect it and by defeating them before they can recover. Our forces must be able to disengage rapidly; move long distances; and counterattack to destroy, disrupt, or delay enemy forces. Offensive operations may be conducted locally to destroy enemy forces in direct contact. They may be designed to attack enemy forces in depth to disrupt their command and control (C^2), destroy their combat support (CS) or combat service support (CSS), and delay or destroy their follow-on forces.

The modern battlefield will involve intense, highly lethal, and nonlinear operations. Conventional and chemical munitions must be tactically planned and integrated into these operations so that maximum Class V support can be provided to the combat forces.

Success on the battlefield will depend on the Army's ability to fight in accordance with four principles: initiative, depth, synchronization, and agility. ALB adds versatility, deployability, lethalness, and expandability. In ALB, the Army's primary mission is power projection. Recent conflicts, including Desert Shield/Storm (DS/S), showed that United States (US) forces must be able to make a power projection rapidly. Inherent in this in-and-out concept is the necessity for CSS, thus Class V supply, to be able to support a variety of force makeups. To maintain combat initiative, CSS must be forward during decisive operations. CSS must be tailored and integrated into the commander's operational concept. CSS comes early and stays late, whether US forces are called to fight wars or, more likely, to participate in LICs. LICs emphasize using forces indirectly to support other nations' efforts to maintain stability. As these characteristics of ALB evolve, they will increasingly influence Class V supply.

Ammunition is an essential commodity on the battlefield. Arming the force is the largest, most time-consuming task of the logistics system. It requires detailed planning and coordination between the combat users, ammunition logisticians, and transporters at all levels, starting with the continental United States (CONUS) sustaining base and ending with the individual soldier. In WCTO, there may not be sufficient time to build a large in-theater stockage level prior to combat operations. For more detailed information, refer to FM 100-5.

THREAT

Conventional ammunition support operations personnel, equipment, and facilities are vulnerable to the entire spectrum of threat weaponry and forces. These weapons and forces include the following:

- Armor.
- Artillery.
- Mines.
- Small arms fire.
- Grenades.
- Missiles.
- Mortars.
- Nuclear, biological, chemical (NBC) munitions.
- Special-purpose forces.
- Terrorists.
- Agents.
- Insurgents.
- Saboteurs.

The likelihood of encountering these threats will vary depending on the proximity of conventional ammunition support operations to other targets on the battlefield, the level of conflict, and the region of the world where operations are being conducted. Ammunition support personnel should be aware that in any type of conflict, ammunition storage and transfer sites will be priority enemy targets. The enemy is likely to have sophisticated weapons, to include those from both the US and the former Soviet Union. Potential enemies may also use former Soviet doctrine and tactics. Further details on Soviet doctrine, tactics, and weapons are in FM 100-2-1, FM 100-2-2, and FM 100-2-3.

It is important to realize that "Third World" does not necessarily mean primitive weaponry or tactics. Sophisticated western and former Soviet weapons and technology are available in Third World countries. At some point, one or more of these nations may again oppose the US militarily. Some of these nations may also be developing and exporting their own weapons, including chemical weapons and ballistic missiles.

CHAPTER 1

ORDNANCE AMMUNITION UNITS

This chapter describes the types of ammunition units and the roles they play in conventional ammunition unit operations. It includes explanations of missions, capabilities, support organizations, and organizational structures.

CONVENTIONAL AMMUNITION ORDNANCE COMPANIES

US ammunition units provide Class V support in both GS and DS roles. The GS ammunition company provides support to EAC, corps, and divisions. The DS ammunition company is a corps asset. It provides support to divisional and nondivisional corps organizations. It is normally assigned to a CSB under a CSG.

GS and DS ammunition companies provide Class V support throughout the theater of operations from the theater storage area (TSA) in the communications zone (COMMZ) to the ATP in the division support area (DSA). These companies are organized under the L-series TOE. They can be task organized to meet temporary support requirements. These units provide responsive Class V support to deployed US forces anywhere in the world. The mission, the capabilities (based on TOE at 100-percent strength and operating at Level 1), and the support organizations peculiar to each company are described in the text that follows. The basic organizational structure described later in this section is the same for the GS and the DS company.

ORDNANCE COMPANY, AMMUNITION, CONVENTIONAL, GENERAL SUPPORT (TOE 09488L000)

Mission

The mission of the GS company is to establish and operate a corps storage area (CSA) or a TSA responsible for the receipt, storage, rewarehousing, shipping, and issue of ammunition. The CSA has the additional mission of building CCLs.

Capabilities

Based on a 24-hour-a-day operation at Level 1, the GS ammunition company provides a daily lift capability of about 5,300 short tons (STONs), assuming a 50-percent mix of containerized and breakbulk ammunition. STONs are used in ammunition operations because their weight (2,000 pounds) is easier to calculate than long tons (2,240 pounds). The company can perform DS maintenance and limited modification of ammunition and its components. The company can also perform emergency destruction of ammunition. Individuals of this company can help the supporting military police (MP) company, or other supporting physical security forces, in the coordinated defense of the area or installation. A GS company can perform unit maintenance on all organic equipment.

Support Organizations

The GS ammunition company depends on the following organizations for support:

- At the theater level, the headquarters and headquarters company (HHC) of the ordnance ammunition group or the ordnance ammunition battalion is used for C^2, technical direction, and administrative support. Refer to Figures 1-1 and 1-2 for organizational diagrams of these groups.
- At the corps level, the HHCs of the CSG and the CSB are used for C^2, technical direction, and administrative support. Refer to Figures 1-3 and 1-4 (page 1-4) for organizational diagrams of these units.
- Appropriate elements of the Theater Army Area Command (TAACOM) or corps support command (COSCOM) for medical, religious, legal, financial, personnel, and administrative support services.
- A signal brigade for area communications support.
- The corps, TAACOM, or theater materiel management centers (MMCs) for Class V management.
- Engineer units for site preparation and site maintenance beyond the company's organic capability.
- Corps and theater transportation assets for the movement of ammunition stocks (movement control center [MCC] or movement control team [MCT]).
- Explosive ordnance disposal (EOD) units (TOE 09527LA00) for EOD support,
- An MP heavy-security company for external security (TOE 19497L000).

ORDNANCE COMPANY, AMMUNITION (MOADS), DIRECT SUPPORT (TOE 09483L000)

Mission

The mission of the DS ammunition company is to establish and operate three dispersed ASPS and to establish and operate one ATP under the direction of the division ammunition officer (DAO). This company is responsible for the receipt, storage, rewarehousing, combat configuration, shipment, retrograde, and issue of ammunition from the ASP. Receipt, issue, and retrograde operations are conducted at the ATP. Refer to ST 9-38-1 for additional information on ATP operations. There are three ATPs in the brigade support area (BSA). These ATPs are attached to and operated by the supply companies of the forward support battalion (FSB).

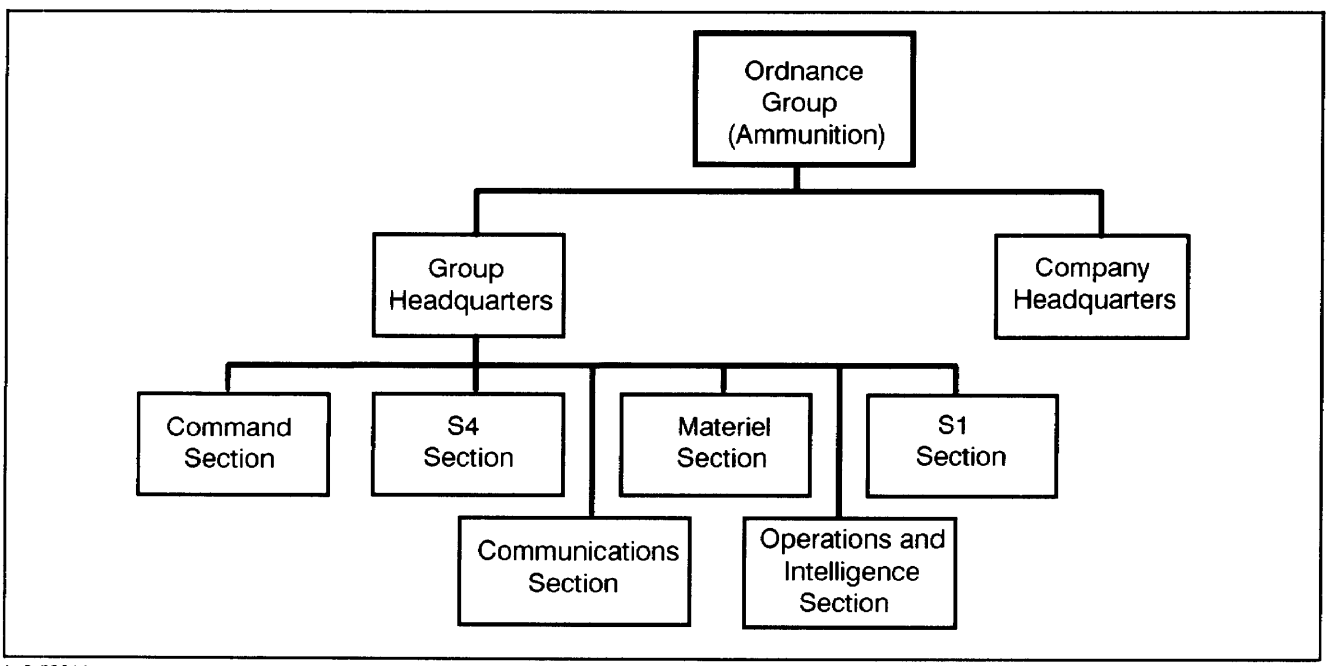

Figure 1-1. Conventional ammunition ordnance group (DS/GS) (TOE 09662L000).

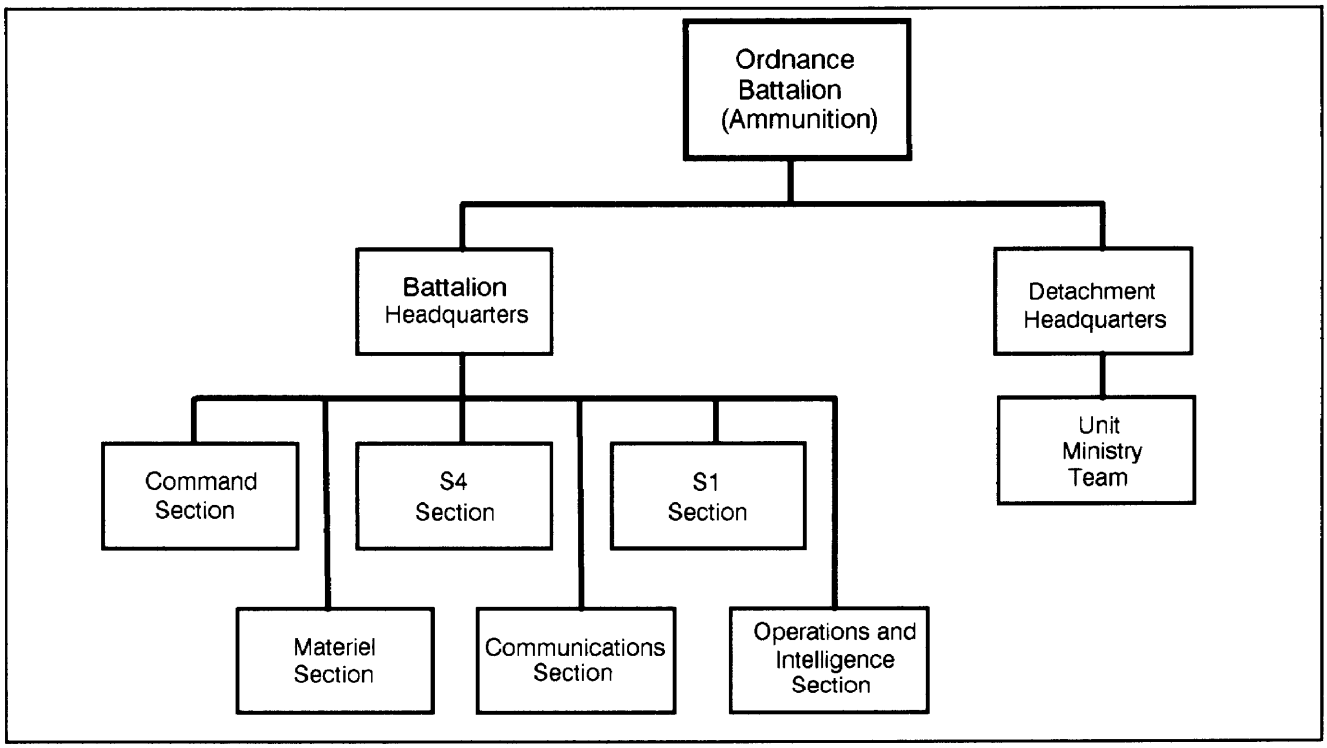

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Figure 1-2. Conventional ammunition ordnance battalion (DS/GS) (TOE 09666L000).

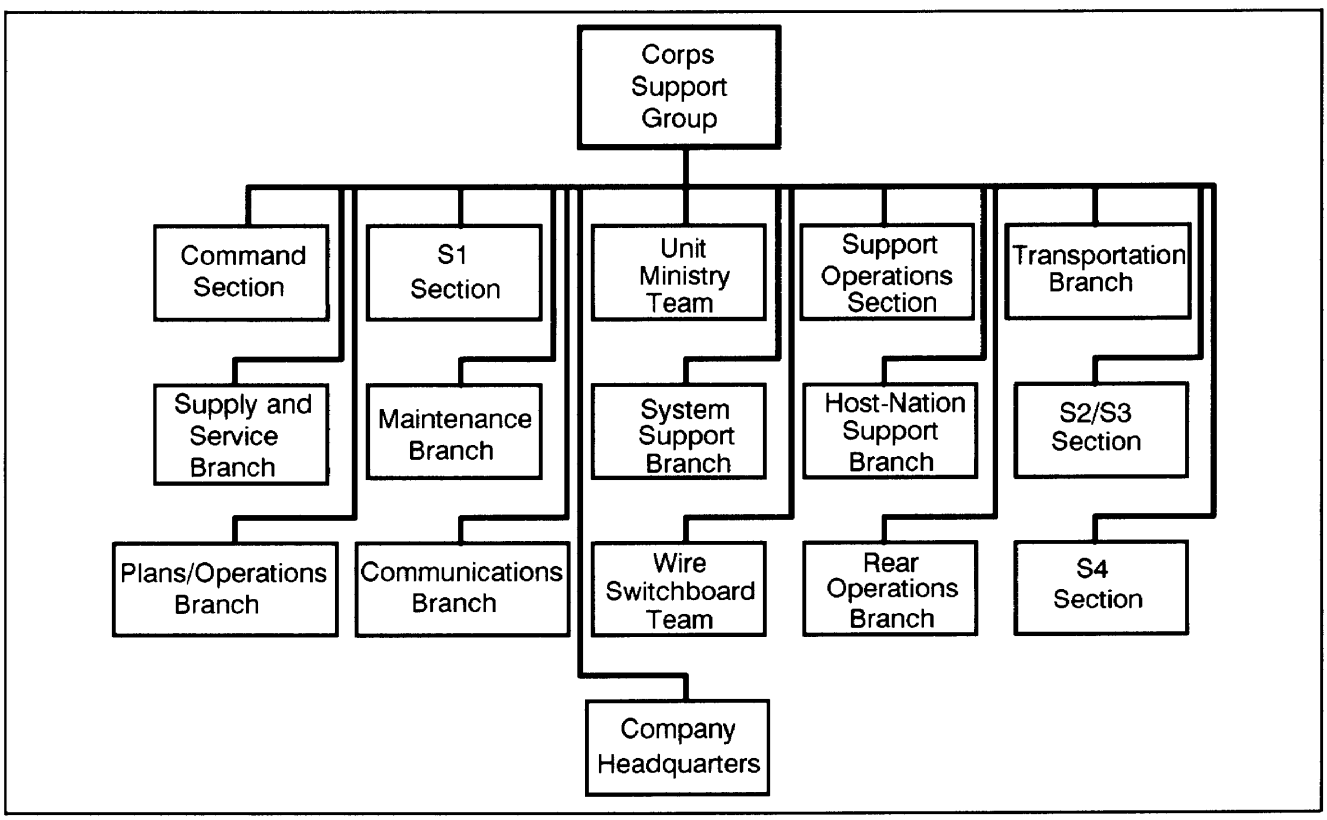

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Figure 1-3. Corps support group (TOE 63422L000).

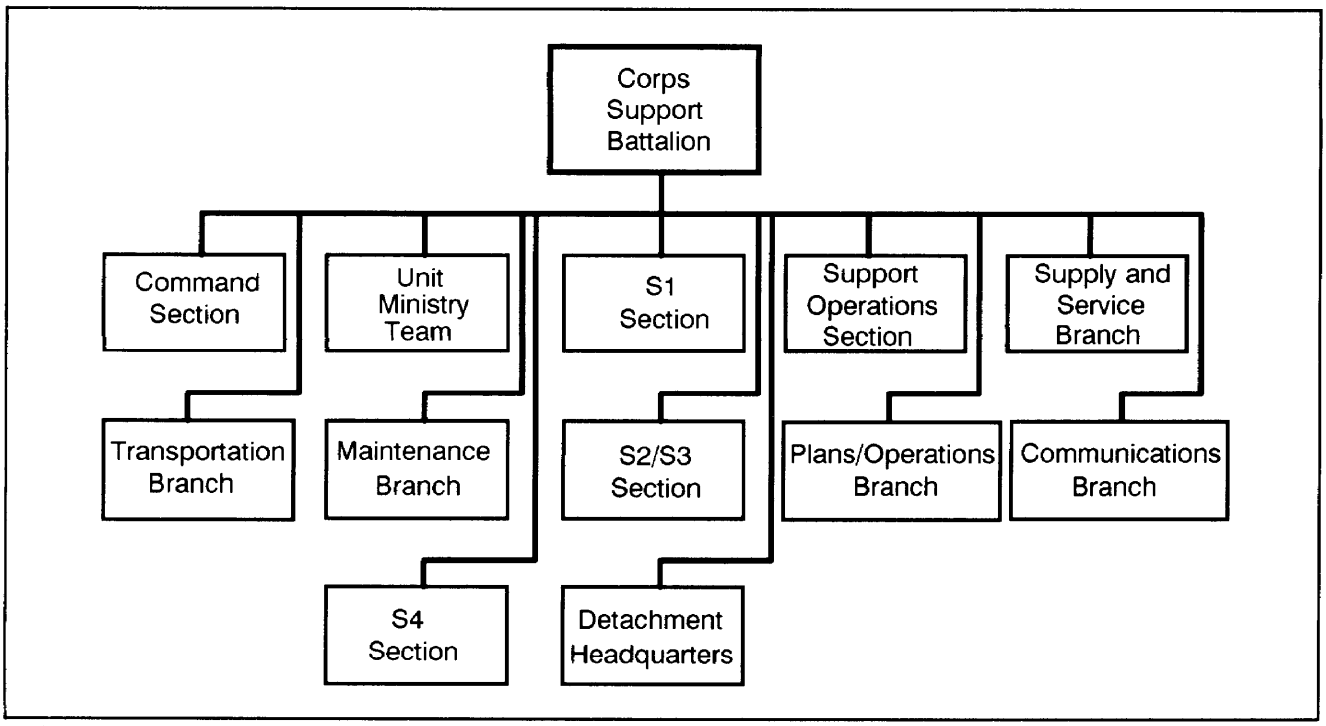

Figure 1-4. Corps support battalion (TOE 63426L000).

Capabilities

At Level 1, this company can provide three ASPS with a total daily lift capability of about 2,100 STONs and an ATP with a daily lift capability of about 970 STONs. The company can perform DS maintenance and limited modification of ammunition and its components at the ASP site. It can also perform emergency destruction of ammunition. Individuals from this company can help in the coordinated defense of the area or installation. A DS company can perform unit maintenance on all organic equipment.

Support Organizations

The DS ammunition company depends on the following organizations for support:

- The HHC of the CSG or CSB for C^2, technical direction, and administrative support. Refer to Figure 1-4 for an organizational diagram of this unit.
- Appropriate elements of the COSCOM for medical, religious, legal, financial, personnel, and other administrative support services.
- A signal brigade for area communications support.
- A corps materiel management center (CMMC) for management and movement of Class V stocks.
- An MP heavy-security company for external security (TOE 19497L000).
- Engineer units for site preparation and site maintenance beyond the company's organic capability.
- Corps transportation assets for the movement of ammunition stocks.
- EOD units (TOE 09527LA00) for EOD support.
- DAO representative for operational C^2 management of ATP operations.
- Logistical support (petroleum, oils, and lubricants [POL], maintenance, subsistence, medical, security, and so on) for the DS ATP will be provided by division rear base-cluster units as directed by the division support command (DISCOM) DAO in coordination with the DS ammunition company commander.

ORGANIZATIONAL STRUCTURE

As stated earlier in this section, the organizational structures of the GS and DS ammunition companies are basically the same. A functional description of each section follows. Diagrams of the individual companies are shown in Figures 1-5 and 1-6.

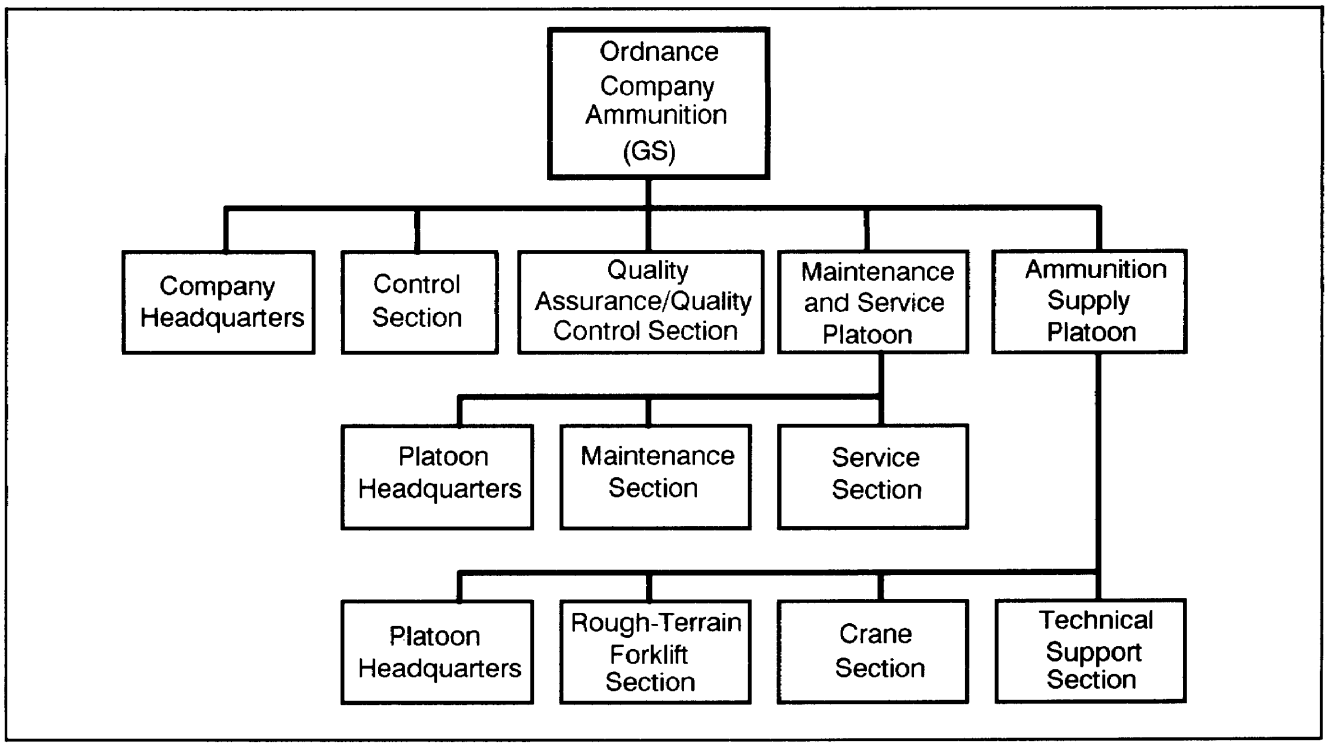

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Figure 1-5. Conventional ammunition ordnance company (GS) (TOE 09488L000).

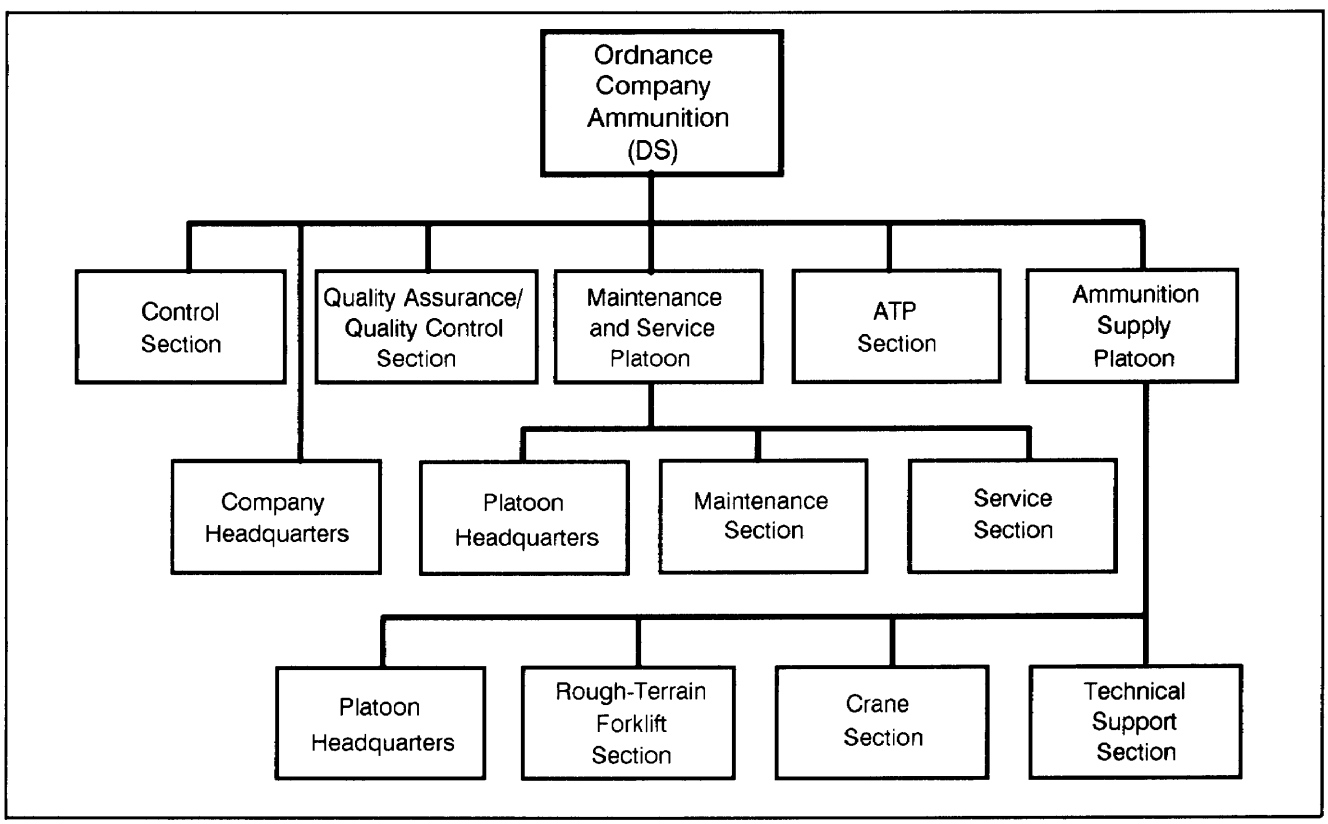

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Figure 1-6. Ammunition ordnance company (MOADS) (DS) (TOE 09483L000).

Company Headquarters

The company headquarters section performs C^2 functions. It ensures that standing operating procedures (SOPS) are adequate and comply with the directives and policies of higher headquarters. It provides administrative support, unit supply, and food service facilities for the company.

Control Section

The control section coordinates and manages mission activities to include supply and maintenance operations. It prepares and maintains ammunition accountable records and reports and operates the communications center. It provides the ammunition supply platoon with directives for shipments, issues, receipts, rewarehousing, retrograde, and storage of Class V materiel. It provides the appropriate MMC with information on transactions that affect ammunition stocks at the ASP. The control section of the DS ammunition company provides a point of contact for the DAO on the status and support requirements, including transportation assets of the DS ATP.

Quality Assurance/Quality Control Section

The quality assurance/quality control (QA/QC) section ensures that all ammunition operations in the unit are conducted properly and safely. The QA/QC section inspects ammunition and reports directly to the battalion commander. The section collects, records, files, and disseminates QA/QC data, reports, and Class V serviceability records.

Maintenance and Service Platoon

The maintenance and service platoon has three sections. The headquarters section plans and directs the activities of the platoon. The maintenance section performs organizational maintenance on organic equipment and operates both the unit motor pool and the POL storage and dispensing facilities. The service section provides engineer equipment, POL vehicles, specialized equipment, operators, drivers, and specialists necessary to support the operation of the supply facilities.

Ammunition Supply Platoon

The ammunition supply platoon has four sections. The headquarters section directs all receipt, storage, rewarehousing, retrograde, shipment, and issue operations, including ammunition preparation. The forklift and crane sections are responsible for ammunition receipt, storage, rewarehousing, shipment, retrograde, and issue actions involving their equipment. The technical support section performs DS maintenance, provides technical assistance, destroys ammunition, conducts inventories, and packs, crates, and bands stocks.

Ammunition Transfer Point Section

The ATP section (MOADS DS company only) operates an ATP in the DSA. Its mission is to provide ammunition support to corps and division units operating in its sector, as directed by the DAO. Refer to ST 9-38-1 for further information.

WARTIME HOST-NATION SUPPORT AMMUNITION UNITS

This section implements STANAG-2135, *Procedures for Emergency Logistics Assistance.*

WHNS is a critical element of the ammunition support structure. In a theater of operations and the corps rear, WHNS ammunition units may supplement some US ammunition units. STANAGs detail how host-nation support (HNS) units operate, the support they provide, and how they interface with the US ammunition support structure. For more details, refer to FM 9-6. WHNS units provide Class V support in a GS role based on geographical location. WHNS frees US assets and allows more flexibility by assigning these assets to other missions and theaters, thus generating more combat power. Personnel working in these WHNS units may be active military and/or trained civilian personnel who have been converted to reserve status under the mobilization agreements. The military support structure includes battalion and regimental operational levels. Under STANAGs, WHNS personnel remain under the command of the WHNS authorities when hostilities break out. Refer to Figure 1-7 to see how WHNS units and US units interface.

In order to sustain US forces properly, coordination and management of WHNS ammunition unit operations are performed by CLTs. These CLTs are organized to perform stock control, inventory and stock status reporting, coordination, and QA/QC functions only. For TOE purposes, these CLTs are divided into three categories; the ordnance battalion, the ordnance company, and the ammunition accountability team (AAT).

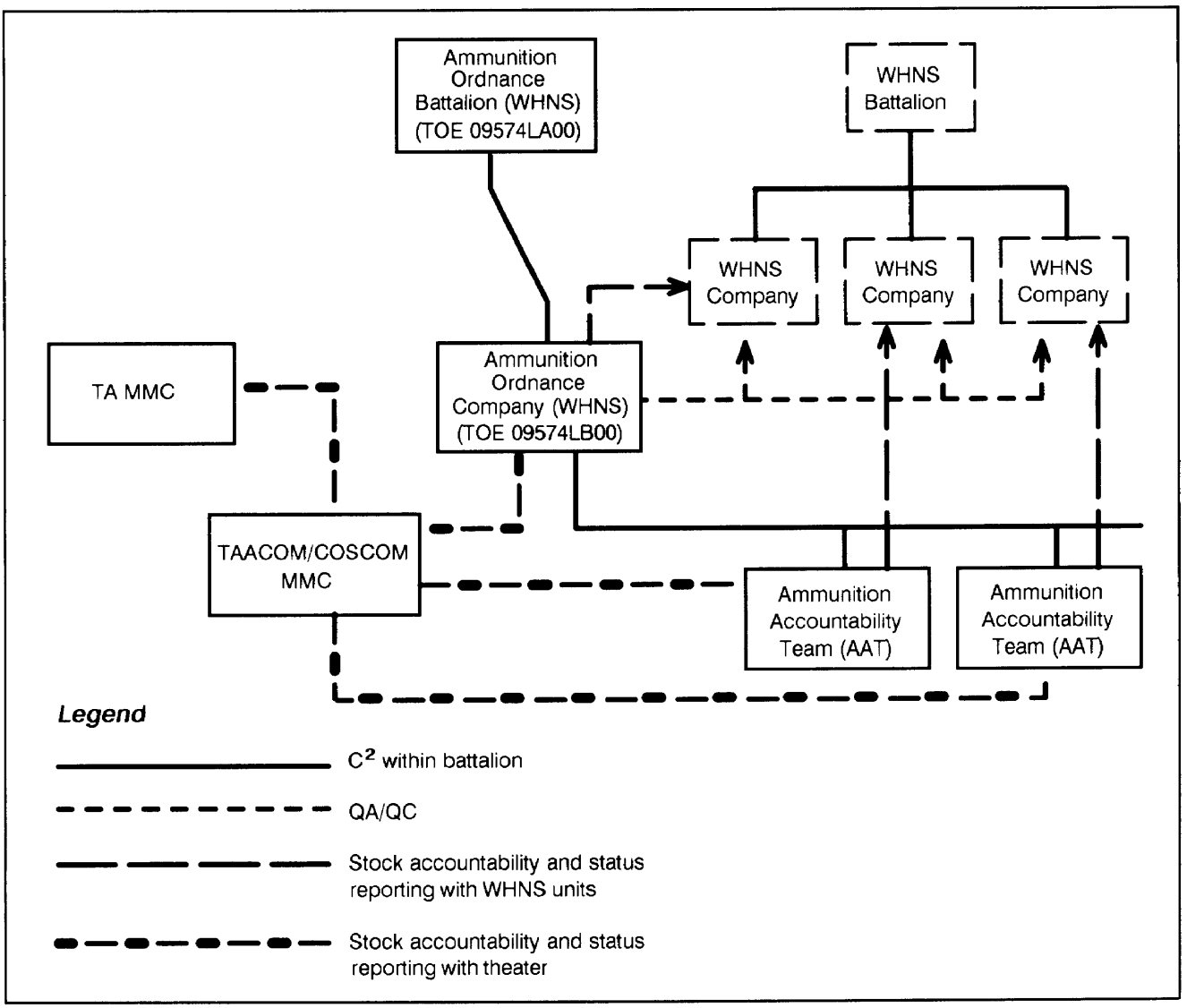

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Figure 1-7. Interface between WHNS units and **US** units.

ORDNANCE BATTALION, AMMUNITION (WHNS) (TOE 09574LA00)

Mission

The mission of the TOE-designated ordnance battalion is to provide C^2 for assigned ammunition companies (TOE 09574LB00). Organizational diagrams of the battalion and company are given in Figure 1-8, page 1-8.

Organization

This battalion is usually assigned to a CSG but may be assigned to a TAACOM ammunition group. The battalion depends on the COSCOM or TAACOM for religious, legal, medical, financial, and personnel support services.

ORDNANCE COMPANY, AMMUNITION (WHNS) (TOE 09574LB00)

Mission

These TOE-designated ammunition companies provide technical expertise in stock accounting and status reporting. They act as the consolidating and forwarding agencies for ammunition management reports, They perform stock accountability, visibility, and surveillance functions. They provide operational control over US-owned ammunition stocks being received, stored, shipped, retrograded, and issued by

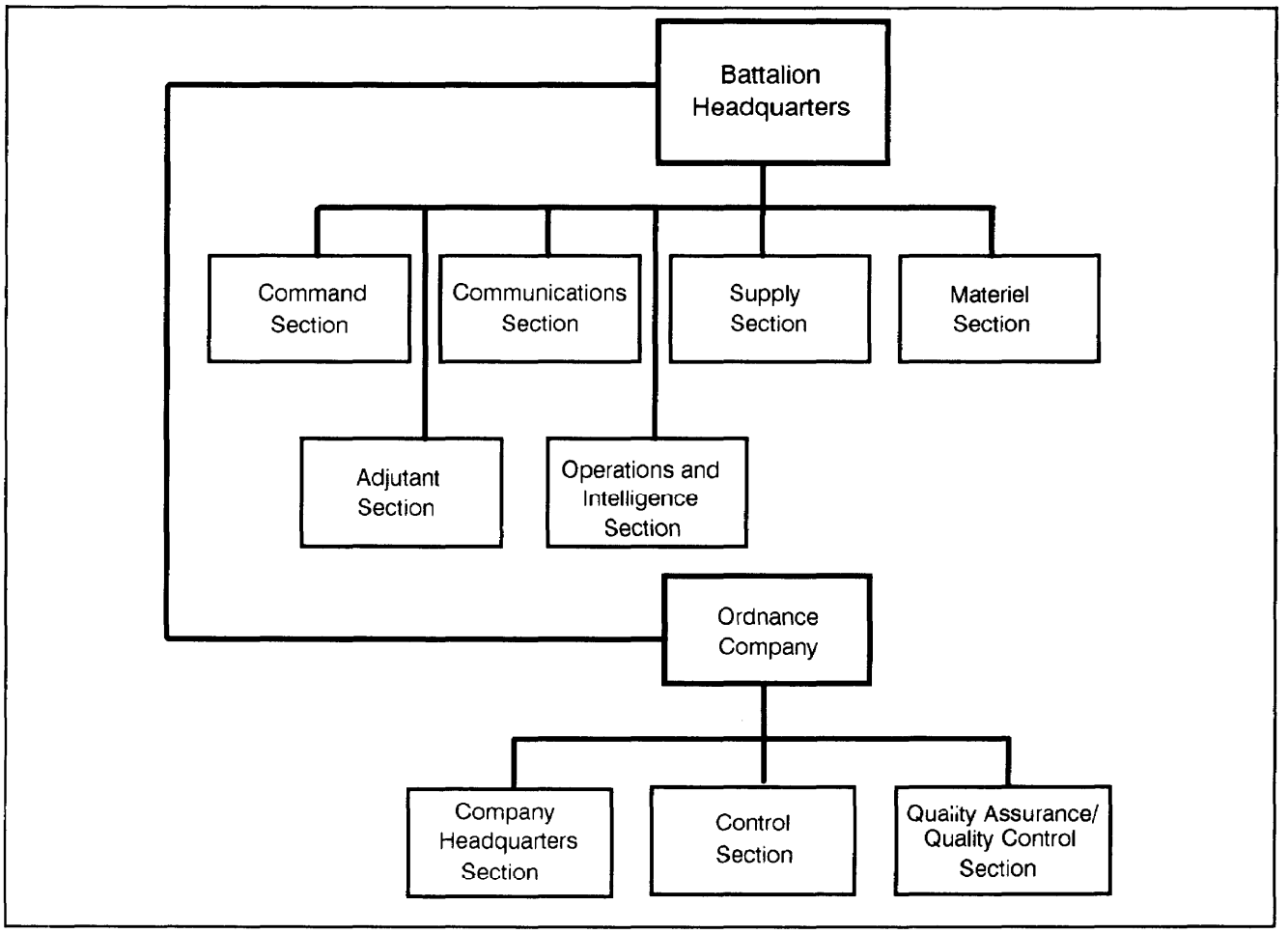

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Figure 1-8. Ammunition ordnance battalion (WHNS) (TOE 09574LA00) and ammunition ordnance company (WHNS) (TOE 09574LB00).

WHNS ammunition units. They also provide an interface from the supporting MMC on Class V directives to the WHNS US battalion C^2 activities, These companies monitor all ammunition operations and ensure that they are done to US QA/QC standards. They assist in the coordinated defense of the unit's area.

Organization

Ammuniton WHNS companies are assigned to an ammunition WHNS ordnance battalion (TOE 09574LA00). In the theater, the company headquarters section collocates with the WHNS battalion headquarters section. Refer to Figure 1-8. The company headquarters section serves as the command, control, and communications (C^3) logistics operations center (LOC) to interface with the supporting ordnance ammunition group and the CLTs. The QA/QC section is also collocated with the WHNS battalion. It is mobile, enabling the section to perform its mission throughout the battalion in support of all assigned WHNS ammunition companies. Class V transactions and accountability data are passed from the company's control section to the Standard Army Ammunition System (SAAS) level operating at the TAACOM MMC.

In the corps, the command relationship is from the company's headquarters section to the battalion headquarters and from the battalion headquarters to a CSG. One exception is Class V transactions and accountability data. These SAAS data are passed from the company's control section to the SAAS level operating at the TAACOM or COSCOM MMC. These same transaction data are also provided to the company's headquarters section.

Operating Sections

Each WHNS company consists of three sections—company headquarters, QA/QC, and control. Refer to Figure 1-8.

The headquarters section provides C^2 over the unit. It is collocated with the WHNS battalion headquarters. It consists of the commander, the first sergeant, and a supply sergeant. The control element of the headquarters section consists of a control officer, ammunition technicians, and communications support personnel.

The QA/QC section enforces US QA standards for all US and WHNS operations unless the host nation's standards are more stringent. In this section are a chief ammunition inspector and several other ammunition inspectors.

The control section is collocated with the WHNS company's operations section. It provides the necessary expertise to establish and maintain the stock record accounts necessary for the control of ammunition received, stored, shipped, retrograded, and issued by the WHNS ammunition company. It prepares reports on stock status, daily issues, and receipt transactions. These reports are sent to the appropriate MMC using ammunition management communications equipment. In this section are ammunition stock control and accounting sergeants and specialists.

AMMUNITION ACCOUNTABILITY TEAM (WHNS)

Mission

These AATs will be designated by TOE when FM 9-6 is revised in fiscal year 1994, AATs provide technical expertise in stock accountability and status reporting and act as a forwarding agency for ammunition management reports. They also assist in the coordinated defense of the unit's area.

Organization

AATs are assigned to a US WI-INS ammunition company and are collocated with the WHNS ammunition company. AATs are supported by the following US organizations:

- The HHCs of the ordnance ammunition group, CSG, or CSB provide command and staff planning, technical direction, and administrative support.
- Elements of the TAACOM or COSCOM provide Class I, H, III, IV, V, VI, VII, and IX supplies as well as medical, legal, religious, personnel, financial, mail, and inspector general support.
- COSCOM and TAACOM MMCs provide Class V management.

The WHNS unit provides support based on STANAGs. This support may include the following:

- Billets.
- Food service.
- POL (bulk and packaged).
- Limited communications support.
- Transportation augmentation for relocation.
- Organizational maintenance.
- Rear-area security.
- Decontamination of personnel and equipment.
- Medical services.
- Mortuary affairs.
- Class V (within its capability).

ROLE OF THE CONVENTIONAL AMMUNITION UNIT

SUSTAINMENT

No combat unit can be effective in battle unless it has adequate logistical support. To ensure this support, tactical and logistical planners must understand the organization, mission, abilities, and limitations of supported and supporting units. Effective support is possible only through clearly defined objectives and operational concepts in doctrine and through coordination among support units, planners, and combat units.

On the AirLand battlefield during intense combat, arming and rearming fighting units may be the largest, most time-sensitive task of sustainment. As a provider of a combat necessity, the ammunition unit's supply operations must be synchronized with other support elements (such as transportation and communications) to provide a responsive Class V support system. The MOADS concept of operation provides this highly responsive Class V support to combat units by combining technological advances in data automation, communications, materials handling equipment (MHE), transport systems, and packaging. Figure 1-9, page 1-10, illustrates MOADS in a theater of operations. With these capabilities, the ammunition unit's supply operations are streamlined throughout the theater of operations. For an in-depth discussion of MOADS, refer to FM 9-6. MOADS also provides the following:

- User-oriented support.
- Reduced vulnerability of ammunition storage and supply areas.

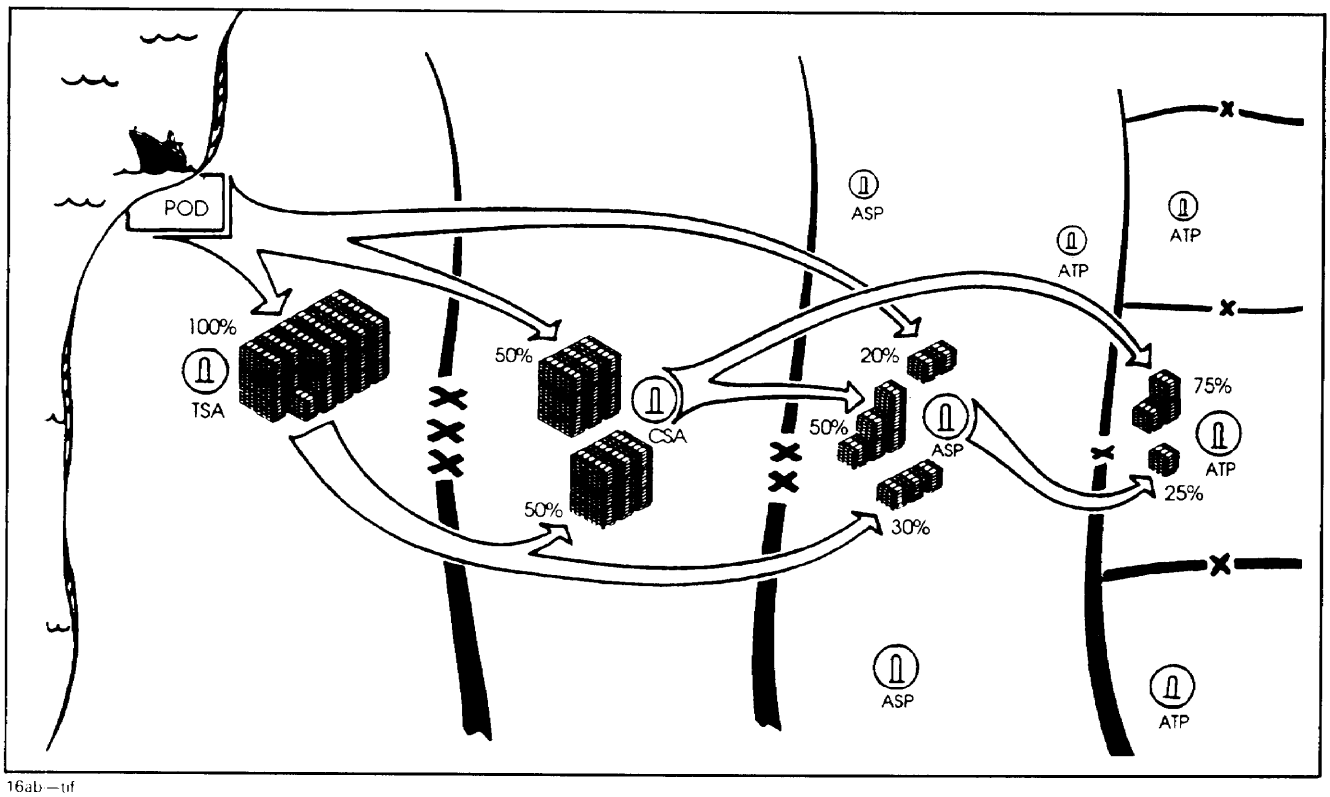

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Figure 1-9. Flow of ammunition within the theater utilizing MOADS.

- Increased flexibility in ammunition operations.
- Support to the AirLand Battle doctrine.

Under the L-series TOE, the DS ammunition company can operate three ASPS and one DS ATP. The DS ATP, organic to and operated by the DS ammunition company, supports corps, divisional, and nondivisional units operating in the DSA. These units are able to draw ammunition from the ATP, eliminating some of the need to go back to the ASP. This reduces the user's resupply travel time.

In addition to the DS ATP, there are three more ATPs in the division area. These ATPs are organic to and operated by the supply companies of the battalions that directly support the maneuver brigades. The primary goal of MOADS is to deliver as close as possible to 100 percent of the user's Class V requirements through these ATPs. In addition to these combat users, other units operating in the brigade sector receive ammunition support from the ATP closest to their unit.

Most ammunition is received at the ATPs as CCLs, a packaging configuration that reduces the user's labor-intensive ammunition handling at the battalion's trains. The ammunition is transported on corps line-haul semitrailers and on PLS vehicles. The PLS is the emerging method of ammunition transport. See Appendix A for the interim operational concept of the PLS.

TRAINING

Training in peacetime is vital to the success of logistics units in wartime. Ammunition unit leaders are responsible for training their personnel to meet standards set in the unit's Army Training and Evaluation Program and soldier's manuals. Training should be based on the current threat, Training should realistically simulate conditions created by enemy actions that will affect ammunition support operations. Simulations should include such things as chemical contamination, terrorist actions, site security, and communications interference or blackout. For further guidance on training, refer to FM 25-100 and FM 25-101. Also, Appendix B provides training guidance in the form of commander's checklists for the various activities of the unit.

EXPLOSIVE ORDNANCE DISPOSAL UNITS

MISSION

EOD accentuates the commander's combat power. EOD units work with engineer and other units to ensure maneuverability, serviceability, and supportability in the main battle area and back through logistical supply routes. It does this while protecting critical logistical assets threatened by unexploded ordnance (UXO) in the rear area. EOD eliminates or reduces the hazards of domestic or foreign conventional, nuclear, and chemical ordnance and improvised explosive devices (IEDs) that threaten personnel, operations, installations, and materiel.

ORGANIZATION

C^2 of EOD units at the theater army (TA) level are provided by the ordnance group (EOD) that monitors all Army EOD activities in the theater. Each TAACOM and COSCOM is provided with 1 EOD control team (EODCT) (TOE 09527LA00). Refer to Figure 1-10 for a diagram of this team. Each EODCT is assigned from 8 to 10 EOD detachments (TOE 09527LB00). Refer to Figure 1-11. Each of these EOD detachments consists of a small headquarters section, an operations section, and a response section that consists of 5, three-person response teams (TOE 09527LC00). The headquarters and operations sections provide C^2 for the 5 response teams. These response teams can work together on multiple UXO incidents with parts of the headquarters and operations sections providing direct coordination at the incident site. Also, each response team can operate independently of the unit on individual UXO incidents for up to 72 hours. For more information on EOD missions and organization, refer to FM 9-15.

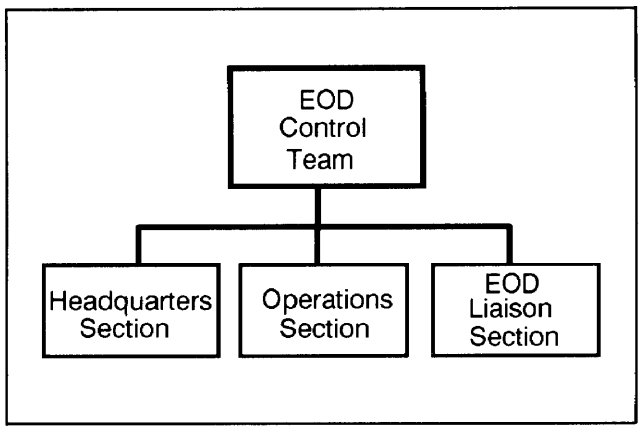

Figure 1-10. EOD control team (TOE 09527LA00).

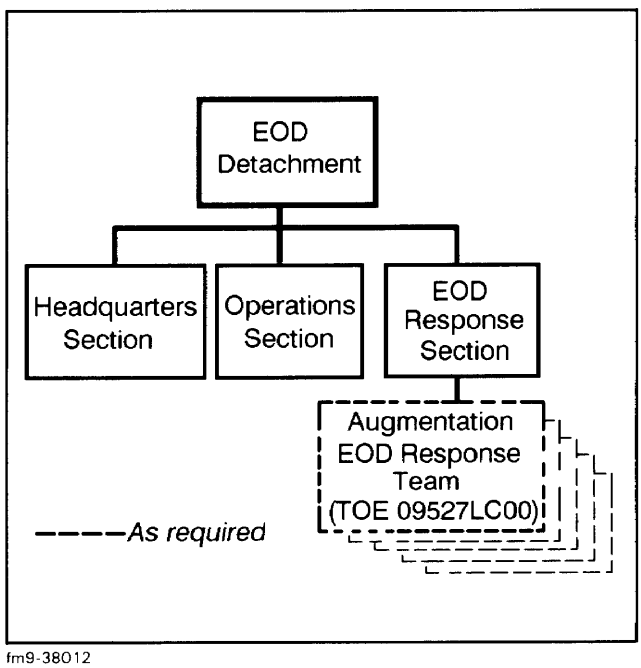

Figure 1-11. EOD detachment (TOE 09527L1300) and augmentation EOD response team (TOE 09527LC00).

CHAPTER 2

WAR/CONTINGENCY AMMUNITION FIELD FACILITIES

This chapter describes WCTO ammunition field storage and supply facilities, types of storage areas, and the basic storage systems used to store ammunition in the field. The ATP, a designated temporary area from which ammunition is transferred from corps transportation to using unit vehicles, is also discussed as a field facility. This chapter also contains guidance on site selection and the development and layout of a combat storage facility. Specifically, site selection criteria, the storage plan, and development of the area layout plan are discussed.

AMMUNITION STORAGE AND SUPPLY FACILITIES

Ammunition storage and supply facilities include the TSA, the CSA, and the ASP. There are also four ATPs per division in the theater of operations that provide a temporary site for the transfer of ammunition. The type of storage facility is decided on a case-by-case basis.

THEATER STORAGE AREA

The TSA is the largest ammunition facility in the theater. It is operated by one or more GS ammunition companies and provides direct support, by area, to units operating in the COMMZ and provides GS to the corps within the theater. The TSA can be a fixed, semifixed, or field storage location. The TSA maintains up to a 30-day supply of ammunition. The number, size, and stockage objective of TSAs are METT-T dependent.

The TSA is normally a permanent or semipermanent storage facility. It may expand to about 40 square kilometers. However, in a combat environment, the TSA may be relocated to a field environment where ammunition stocks are kept in open storage. If so, it should have as much hardstand as possible and a good road network to support heavy traffic. The TSA must be set up to move both breakbulk and containerized ammunition onto and off of both railcars and line-haul transporters. To ensure smooth shipment operations, the TSA should be located where there is ready access to highway, rail, air, and port facilities. Other units in or near the TSA (such as transportation and terminal support units) help the GS ammunition company conduct railhead operations as well as transload operations when changing from one mode of transportation to another.

The TSA receives 100 percent of its ammunition from the port of debarkation (POD), whether it be seaport, airhead, or logistics-over-the-shore (LOTS) operations. The ammunition and components received are either containerized, breakbulk, or a combination of both. The ammunition arrives at the TSA on theater transportation assets, primarily railcars and trucks. Under MOADS, ammunition sent from the TSA to the CSA and ASP is generally shipped as single-Department of Defense identification code (DODIC) loads. Since a high percentage of the TSA's

receipts are containerized, the containers must be effectively managed by both ammunition and transportation personnel to ensure accountability and to retrograde them efficiently for reuse.

CORPS STORAGE AREA

The CSA is the primary source of Class V ammunition for the division. Operated by one or more GS ammunition companies, the CSA also provides DS, by area, to units operating in the corps, The CSA can be a fixed, a semifixed, or a field storage facility. It should be located near improved roads and rails in order to allow access by theater and corps assets. The stockage objective of the CSA should be from 10 to 15 days of supply at the time of deployment. Following the initial combat drawdown, the CSA should maintain from 7 to 10 days of supply. The number, size, and actual stockage objective of CSAs are METT-T dependent.

In established theaters, initial stockage of the CSA is 100-percent breakbulk from prepositioned war reserve stocks (PWRS). Once the supply system is established, the CSA receives about 50 percent of its ammunition from the POD. The remainder is from the TSA. Generally, ammunition resupply from the POD is both breakbulk and containerized, while shipments from the TSA are single-DODIC loads. Ammunition is normally shipped from the CSA to an ASP in single-DODIC and multi-DODIC loads and as CCLs. The ammunition shipped from the CSA to the ATPs is configured into CCLs.

Like the TSA, the CSA can also expand to about 40 square kilometers. The storage environment depends on the tactical situation. A medium truck company that works in DS of the GS ammunition company that operates the CSA should be collocated in or near the CSA.

AMMUNITION SUPPLY POINT

Located in the division rear and operated by the DS ammunition company, the ASP provides Class V support to corps, divisional, and nondivisional units. An ASP is a field site. It should be located near an improved road network in order to ensure access by theater/corps transportation assets. It maintains a one- to three-day supply of ammunition in order to meet routine, surge, and emergency requirements of supported units. The actual stockage level and size of an ASP are METT-T dependent.

The ASP can expand to 5 or 6 square kilometers or even larger depending on the factors of METT-T. Ammunition storage in an ASP is more temporary than at the CSA and the TSA. Unlike the CSA and TSA, ASP stocks are most often stored on the ground on unimproved surfaces. An ASP should be laid out so that vehicles can enter and leave any one area without crossing any of the other areas. The ASP should also have a good road network to support heavy traffic.

Under MOADS, 50 percent of the ammunition arriving at the ASP is shipped from the CSA as single-DODIC loads. About 30 percent is shipped from the TSA, usually as single-DODIC loads. The remaining 20 percent is shipped from the POD. Once in the ASP, the ammunition is issued in single-DODIC loads or as CCLs.

AMMUNITION TRANSFER POINT

ATPs are the most mobile and responsive of all Class V supply facilities. In fact, ammunition may be transferred to using-unit vehicles immediately upon their arrival, depending upon the intensity of combat and the criticality of need, Normally, if the ammunition is loaded on PLS sideless containers (SCs), the SCs are placed on the ground. If PLS is not used, loaded semitrailers minus their tractors are parked in the ATP area. The ATP Class V assets remain in this temporary location until they are transferred to the organic vehicles of the using units. A one-day supply of ammunition is maintained in this manner.

Ammunition is transferred from corps semitrailers, flat-bed trucks, or PLS vehicles and/or trailers to the user's tactical vehicles using either resupply vehicles with MHE (such as, heavy-expanded mobility tactical trucks [HEMTTs]) or organic ATP MHE. When emptied, the trailers are backhauled by departing empty tractors or PLS vehicles. Trailers or PLS SCs are often used to retrograde unserviceable and/or captured enemy ammunition (CEA) back to the corps. Enemy prisoners of war (EPW) may also be transported by these vehicles. Refer to FM 55-10 for additional information,

ATPs receive about 75 percent of their ammunition requirements from the CSA. The remainder comes from an ASP. The CCLs issued from the CSA and ASPS together make up 90 to 95 percent of the ATP's assets. The remaining 10 percent is received as single-DODIC items from the ASP.

ATPs are located in the BSA and the DSA. The goal of an ATP is to provide as close as possible to 100 percent of the ammunition requirements of all units

within its sector. Within each maneuver brigade, the FSB operates an ATP. This ATP provides ammunition support to units in the brigade sector. It receives mission guidance from the DAO, who responds to priorities established by the division commander and brigade commanders.

The DS ammunition company provides personnel and equipment to operate an additional ATP in the DSA. This ATP supports all corps, divisional, and nondivisional units in the DSA. It receives mission guidance from and responds to priorities established by the DAO. This ATP increases the flexibility of the division commander by cutting travel time for those units supporting the division's mission. Units do not have to go to the ASP for Class V support. To support corps slices and division artillery, this additional ATP provides an additional transload capacity of about 970 STONs for high-volume, high-tonnage artillery and Multiple-Launch Rocket System (MLRS) ammunition.

Based on the division commander's concept of operation, the DAO specifies the units to be supported by each ATP. The DAO also recommends locations for the ATPs (based on METT-T) to the command organization responsible for positioning them. ATPs should be located near a main supply route (MSR) or an adequate road network in order to ensure access by corps vehicles. These vehicles have limited cross-country capability. ATPs should be established on firm ground that is well drained and that provides easy access for using-unit vehicles and for recovery of pallets and trailers. MHE must have enough space to maneuver. As with any other tactical site, good cover and concealment are important.

A DAO representative is assigned to each ATP to coordinate with the DAO. The DAO representative reports all daily transactions to the DAO via ammunition management computers or communications equipment. ATP personnel also maintain close communications with their respective commands.

Security at the ATP is critical. Normally, the ATP is located within a base cluster. However, due to safety reasons, the ATP is separated from the other units within the cluster. Therefore, the base-cluster commander must decide what additional security requirements are needed for the ATP as per local SOPS. ATPs must be prepared to move often. When an ATP is relocated, the move must be closely coordinated with the DAO and, in the case of the DS ATP, with the D S ammunition company commander. When cut off from its company's support, an ATP should be able to attach to the nearest base cluster.

STORAGE AREAS

A TSA, CSA, or ASP can be a field, a fixed-site, or a semifixed storage area. The type of storage area is decided on a case-by-case basis.

FIELD STORAGE AREA

A field storage area provides Class V support to combat and CSS units based on their combat requirements. Class V assets in a field storage area are usually stored on the ground, on an unimproved surface, or in built-up areas using existing buildings.

The number of sections and subdivisions within a field storage area depends on the following things:

- Quantity-distance requirements.
- Size of the area.
- Arrival time and size of incoming shipments.
- Site characteristics.
- Estimated length of time to relocate (to ensure adequate operational control and dispersion of stocks are maintained).

For more information, refer to FM 9-13, AR 385-64, and TM 9-1300-206. FM 9-13 provides a more detailed discussion of sections and subdivisions. Several storage areas may be planned, but only one area is prepared immediately. The initial storage plan may be expanded after the site becomes operational.

There are five storage systems that may be used for field storage of ammunition and explosives: area storage, roadside storage, combination area and roadside storage, modular storage, and urban/village built-up storage.

Area Storage System

In area storage, the storage area may be divided into sections. The stacks of ammunition are arranged in a checkerboard pattern and spaced according to the quantity-distance requirements in TM 9-1300-206.

Roadside Storage System

In roadside storage, explosives and ammunition are stored along the edges of existing roads. Based on METT-T, the stacks are spaced according to the quantity-distance requirements in TM 9-1300-206 and/or AR 385-64. Roadside storage in-depth offers maximum storage per mile of road front. However, the ammunition must be accessible to conveyors, forklifts, and cranes.

Combination Area and Roadside Storage System

In this system, both area and roadside storage are used. This combination is often used to make the most effective use of the storage area.

Modular Storage System

In modular storage, ammunition is stored on pads within earth-barricaded areas called cells. These cells are joined to form modules; and, in turn, these modules may be arranged to form module blocks. Requirements for this type of storage are in TM 9-1300-206.

Urban/Village Built-Up Storage System

The possibility of setting up ammunition supply operations in a village or other built-up area is very real and requires consideration when planning wartime operations. In the urban/village built-up storage system, the real estate could be in an existing small city, a village, or a structure in the outlying countryside. The physical configuration layout is based on the safety requirements for Class V storage found in AR 385-64 and TM 9-1300-206.

FIXED-SITE STORAGE AREA

A fixed-site storage area provides Class V support to combat, CS, and CSS units based on their requirements. Fixed-site areas are established in CONUS and outside CONUS (OCONUS) based on identified support requirements and contingency plans. They are permanent magazine storage structures used during the transition to war and during the war.

SEMIFIXED STORAGE AREA

A semifixed storage area is a storage area that has been opened and has structures (buildings and bunkers). It can be used for Class V storage and may become a fixed site. It can be closed out when the Class V organization moves.

SITE SELECTION

GENERAL CONSIDERATIONS

When selecting a WCTO field storage site (ASP, CSA, TSA, or a temporary holding site [ATP]), the ammunition unit commander and division support unit commanders should first consider safety and efficiency. Site selection and layout of an ATP are covered in ST 9-38-1.

When selecting a storage site, a primary site and an alternate site should be selected in case the unit's position becomes untenable due to enemy action or the effect of weather on the terrain. A map reconnaissance and, if possible, a ground reconnaissance of the proposed sites should be made to ensure that the sites are suitable for performing safe operations and providing service to using units. Sites should also be easily defended, yet suitable for tactical operations. A map reconnaissance provides information on the terrain and natural cover and concealment. A ground reconnaissance reveals terrain features that have changed since the map was printed. Based on reconnaissance information, the proposed sites are then drawn on the map, showing possible storage locations and operating areas. Then, if time permits, the unit commander and key personnel should make another ground reconnaissance to verify storage locations and the site plan and to ensure that operational needs are met.

TACTICAL CONSIDERATIONS

Tactical conditions and METT-T factors must be considered to reduce conflict between the tactical and safety requirements of an ideal site. These requirements are often not compatible, and defense risks must be weighed against the operational mission. Storage of ammunition in urban areas is a real possibility and should be considered in war/contingency operations plans and training. The urban/village built-up storage system was discussed earlier in this chapter. The procedures outlined in this section apply to all storage and supply areas. The tactical situation may require that the procedures be modified or supplemented. Ammunition unit commanders and division support unit commanders should consider transportation, nearby facilities, defense, road network, railheads, terrain, and fire safety when deciding on a storage site. Other tactical considerations are found in FM 71-100, FM 100-15, and the EAC portion of FM 90-23.

Transportation

Storage sites should be located near the MSR and supported units to allow easy access to customer units and resupply vehicles. The distance to supported units must be reduced in keeping with security constraints.

Facilities

Storage sites should have ready access to, but be located as far as possible from, hospitals, important military installations, airfields, docks, fuel storage and/or distribution activities, factories, and similar facilities, especially those sites subject to enemy attacks. Downwind distances to populated areas must also be considered, since chemical agents may be a part of the on-hand assets.

Defense

A storage site should be easy to defend against ground attack using the fewest personnel and materials possible. The site should be large enough to allow for dispersion of stocks to protect against heavy loss by fire or explosion,

Road Network

There must be as good a road network as possible into and within the site. Roads must be easily passable for large vehicles under all weather conditions. They should require as little maintenance as possible. A one-way traffic pattern is preferred to minimize confusion and congestion.

Railhead

A railhead nearby is desirable for those Class V storage sites that may later be developed into larger sites.

Terrain

Storage sites should be established on firm, level ground with good drainage and provide easy access for using unit vehicles and for recovery of SC pallets and trailers. Level ground with natural barriers at proper intervals to segregate field storage units (FSSs) and categories of ammunition is desirable. As with any other tactical site, good cover and concealment are important.

Fire Safety

Attention must be given to fire hazards when establishing a storage site. The field fire control SOP should be followed to reduce fire hazards.

STORAGE AREA PLAN

A detailed storage plan for a new storage area must be developed at the earliest practical time. It should be based on the following factors:

- The time available before the first and subsequent shipments will arrive.
- The estimated tonnage for each type of Class V materiel to be received, stored, issued, and shipped.
- The estimated time the storage area will be in operation.
- The type of storage area—ASP, CSA, or TSA (field or fixed).
- The amount of time and resources available to lay out or reconfigure and prepare the storage area.
- The storage system to be used—area storage, roadside storage, combination area and roadside storage, modular storage, or urban/village built-up storage.
- The use of planographs to show the exact location of ammunition in a field storage or fixed-site storage area. In order to meet the requirements of their particular situation, units may create local planograph layout forms according to TM 743-200-1.
- The use of signs to mark field storage or fixed-site storage areas. Enough signs should be put up along the MSRs to the storage area to guide supported units to the site. Signs should be used liberally inside the storage area to indicate routes, entrances, exits, and storage locations. They should be large enough to be read easily. Directional arrows should be used as needed. The signs should be written in the language of the host nation as well as in English. All signs are removed when the area is closed.
- The assistance needed from other units,
- The physical characteristics of the selected site (such as road network, terrain, size of the area, and cover).
- The emergency destruction plan.
- Engineer support requirements.
- Security requirements, ***to*** include defense against enemy action and theft.
- Section and FSU pad or module designations to ensure rapid location of Class V assets.
- Other tactical considerations according to FM 71-100, FM 100-15, FM 100-5, and the EAC portion of FM 90-14.

AREA LAYOUT PLAN

GENERAL CONSIDERATIONS

In operating an ASP and an ATP, the DS ammunition company has more well-defined layouts than the GS company does in operating the TSA and CSA. However, there are fundamental rules that apply to the layout of all types of ammunition supply and storage facilities. For example, general safety procedures for all operations are the same and should be considered first in any site layout. Basic operating procedures are also the same. In any field storage environment, an ASP should be divided into three sections so that issue, transfer, and receipt operations can all be performed at the same time.

Both the CSA and the TSA can operate in a deserted ASP that has been or can be expanded to meet the characteristics of a CSA or a TSA. They may also have to operate in a completely undeveloped area. Although an undeveloped area is the least favorable location, the tactical situation may dictate its use. The key differences between TSA and CSA field sites and ASP and ATP field sites are that the TSA and CSA should have larger, more stable storage areas and better road networks.

TACTICAL CONSIDERATIONS

One of the most important steps in developing a site for an ammunition supply area is preparing the area layout plan. Area layout requirements for each unit vary according to the tactical situation, the terrain, the nearness to forward areas, and the type and amount of materiel handled. A good layout is one that makes the work flow easier or more efficiently; minimizes the movement of ammunition, tools, and equipment; permits easy entry and exit for heavy traffic; provides effective control of unit operations; and permits defense of the area. Proper positioning of weapons, construction of defensive works and obstacles, organization of unit defense, and security are other prime considerations.

A map overlay should be prepared to include the defense plan and the operational layout for the new area. If appropriate, a route overlay or schematic diagram is also prepared. The overlays are used by the advance, main, and rear parties. A copy is submitted to higher headquarters.

When WHNS is available, area layout is a combination of' mutual coordination between US services and allied HNS activities. If the unit is being supported by WHNS, the planning guidance in the sections that follow applies to the US ammunition battalion (TOE 09574LA00) and the WHNS allied battalion that is augmenting the GS mission in the corps or at EAC. Refer to Chapters 1 and 6 for additional guidance on WHNS.

PLANNING CONSIDERATIONS

For safety, all storage areas should be arranged into three separate sections when possible. Each section should make the arrangement of stocks for receipt, issue, and inventory/rewarehousing as easy as possible. Each section consists of a number of storage locations (or modules), depending upon the type of storage system used. During WCTO, the storage locations within each section are separated according to the quantity-distance requirements in AR 385-64. Each storage section should contain a similar amount of each type of ammunition to be stocked. A field-developed storage plan that is based on the initial stockage objective should be prepared before stocks are received in order to ensure a smooth flow of receipts to the proper storage locations. To maintain efficient operations and to prevent using units from waiting unnecessarily, the following guidelines should be followed:

- Make sure signs are posted showing traffic direction, entrances, and exits.
- Draw maps of the storage areas, Use copies of them to direct using units to the proper storage area.
- Group ammunition by storage categories. Refer to AR 385-64 for further information on storage categories.

The ammunition company commander may assign the operation of each section of the storage area to various elements of the company (for example, to the supply platoon or a section of the supply platoon). This enables the platoon or sections of the platoon to remain intact so far as operations are concerned. It also fixes responsibility and increases operational control of each section. In the interest of uniformity, sections should be designated by number. Storage locations should be designated by number and letter.

Each storage location contains several ammunition stacks. Each stack contains a single type of ammunition. Ammunition stored in a single stack should follow the field storage category requirements in FM 9-13 and TM 9-1300-206. However, based on METT-T, ammunition unit commanders may be

faced with tactical situations that require the storage of ammunition under less strict conditions. For more information, refer to AR 385-64. CCLs are an example of how wartime supply facilities may store ammunition in order to provide more responsive support to the combat forces. CCLs are matching quantities of ammunition that are delivered to the user in complete rounds on one carrier. For example, a CCL might have fifty 155-millimeter projectiles, 50 propelling charges, 50 primers, and 50 fuzes.

LAYOUT CONSIDERATIONS

A typical area layout plan for an ammunition supply area is shown in Figure 2-1, page 2-8. Separation distance is discussed in AR 385-64. Each area should have the following areas, based on METT-T:

- Bivouac Area. The bivouac area is the living area for company personnel. It should be upwind from the ASP and outside the fragmentation and blast areas.
- Storage Area. The storage area is where the stocks of ammunition are actually stored.
- Storage Area Command Post (CP). This CP is located at the main entrance to the storage area in order to provide a control point for supported units. It should be conveniently located to the vehicle holding area so that arriving convoys can pull off the road while awaiting instructions. In larger storage facilities, such as the TSA and the CSA, section CPs are also used in order to service supported units efficiently.
- Vehicle Holding Area. The vehicle holding area is established to reduce congestion. It is located near the storage area office where vehicles will not interfere with the flow of traffic. Ammunition vehicles are held in the area until they can be loaded or unloaded. Incoming vehicles should be inspected in this area. Parking areas should allow for the required minimum safe distance between loaded vehicles and the storage area office as required by TM 9-1300-206.
- Vehicle Assembly Area. The vehicle assembly area is conveniently located to the exit of the storage area. Here, loaded vehicles are formed into convoys prior to leaving the area.
- Demolition Area. The demolition area is used for the destruction of unserviceable ammunition. This area should be cleared of vegetation and should not be used for anything else.
- Captured Enemy Ammunition Storage Area. The CEA storage area is used to store CEA separately from other munitions. It should be well isolated by firebreaks. Accountability of CEA is discussed in Chapter 6.
- Segregation Area. The segregation area is used to isolate ammunition that could be hazardous. This ammunition includes items damaged in transit, unidentified items, unit turn-ins, small arms brass that has not been inspected, and mixed lots of ammunition on the same pallet.
- Inert Salvage Area. The inert salvage area is used to store nonexplosive ammunition salvage material (boxes and brass). It should be conveniently located near the vehicle holding area so that returned salvage material can be unloaded from the users' vehicles before they enter the storage area to draw ammunition.
- Surveillance and Maintenance Area, The surveillance and maintenance area is used for the inspection and classification of ammunition and for maintenance operations.
- Ammunition Sling-Out Area. The ammunition sling-out area is located near the storage areas in order to provide for limited aerial resupply by rotary-wing aircraft. There are many factors a commander should consider when determining the location, construction, and use of this area. It should be at least 550 meters from either Class V storage areas or inhabited areas so that the aircraft will not pass too low over these areas while ascending and descending. The area should be at least 25 meters square and made of the best material available to support the weight of the stocks and the MHE. More information on sling-out operations is at the end of Chapter 5.
- CCL Area. The CCL area is used as a temporary holding area for CCLs awaiting shipment.
- Vehicle Maintenance Area. Located within the bivouac area, the vehicle maintenance area is used by ASP personnel to perform maintenance on their vehicles and MHE. A separate part of this area may also be designated for refueling operations.

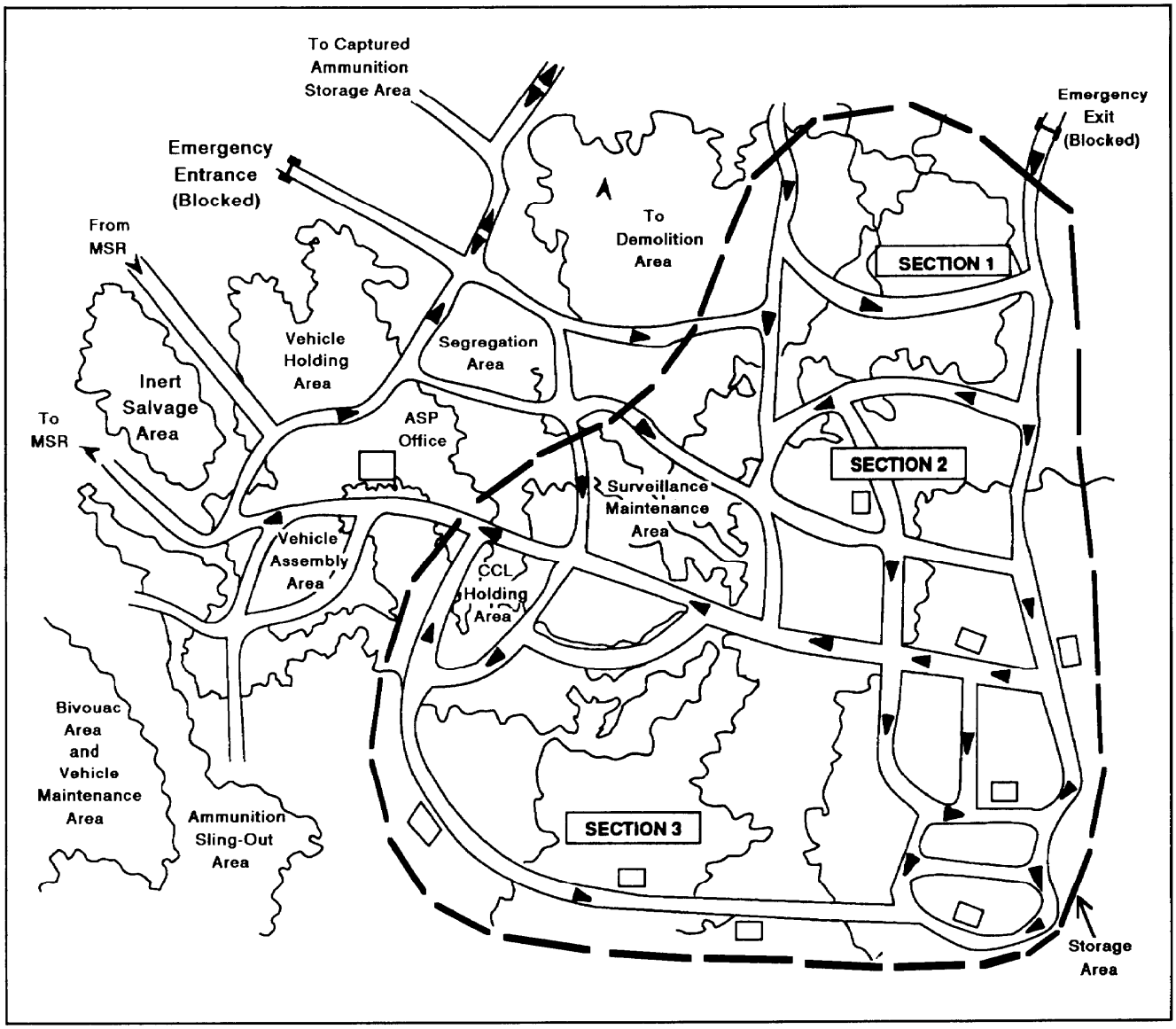

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Figure 2-1. Typical area layout plan for an ammunition supply point.

CHAPTER 3

CONTINGENCY OPERATIONS PLANNING, TRANSITION TO WCTO, AND POST-WCTO TRANSITION

This chapter describes ammunition operations in wars and contingencies. WCTO planning, to include the development of a contingency plan and SOPs, is discussed. Prepackaging of material, retrograde of ammunition, and how to request transportation are also covered. This chapter also provides information and guidance on a unit's transition to a WCTO. Transition to WCTO is enhanced by the use of the contingency plan and field SOPs to train unit personnel. Chapter 3 also discusses the stand-down and retrograde operations associated with the post-WCTO transition.

WAR AND CONTINGENCIES

War is a major conflict between nations that may or may not be declared. Most wars last longer than a year. Contingencies are crises, often with complex political implications. These crises may happen anywhere in the world where US interests are threatened. Their military mission and threat are often uncertain and vague. Although contingencies may evolve slowly, the decision to use a military option is usually made within short deadlines; and a quick, clear victory is expected. Therefore, contingency operations are short, usually less than a year. They almost always take place in a new or a maturing theater as defined in FM 9-6, where no or few US forces are established. In a contingency, US services will be fighting jointly, possibly with allied participation. The terms "war" and "contingency tactical operations" in this manual are synonymous for Class V support operations. The main differences are the size of the combat force being supported, the size and makeup of the support structure on the ground, and METT-T.

Present and future battlefields require that DS and GS ammunition units be mobile and agile, particularly the DS units. Future battles may be nonlinear, with rapid movement and changes. Thus, ammunition support units must adapt to operating in many different scenarios and configurations. Units could be supporting small-, medium-, or full-corps task forces. In support of any of these forces, an ammunition unit may not operate as a unit but as a fraction of the unit. It is possible that one-third of the unit would be deployed to support a brigade task force. It is important that the security and operation of these factions be self-sustaining and 100-percent mobile using organic transportation.

A WCTO may require fast-moving operational support. Thus, training for a WCTO and its

circumstances becomes an essential element of readiness, effectiveness, and success.

The unstable, uncertain nature of a WCTO means a radical change in how ammunition units are situated. In peacetime, both DS and GS ammunition units operate out of fixed sites, with all associated support and facilities in place. In contingency operations, the unit enters a country, not always friendly, to support a rapidly deploying force.

There is no one scenario for a WCTO. For example, a DS or GS ammunition unit may find itself the sole Class V support activity. Another operation might find DS units operating an airhead or port for the receipt of Class V stocks instead of an ASP activity. Still another operation might result in a less-than-company-sized ammunition unit providing support to special operations forces in a counterinsurgency operation. While the tonnage figures in the last instance might be low, stock management would be critical.

Ammunition support, like other logistical support operations in a WCTO, requires that the right equipment in the TOE, in the right quantity, and expendable supplies be brought with the unit to perform its support mission. If they are not, the unit will have to "do without" for a possibly unacceptable length of time. With the fast pace and all of the unknowns of any contingency operation, no unit can afford to "do without" for any length of time and still expect to complete its mission.

PLANNING CONTINGENCY OPERATIONS

A review of recent US Army involvement in contingency operations clearly indicates the need for better logistical planning in order to support our forces. To this end, plans must be developed to support brigade through corps operations in theaters of operation to include low- to high-intensity conflicts. In these plans, it is critical that Class V support planning be detailed and threat based.

The above factors, plus the variety of situations in which a unit may find itself, should be considered by both DS and GS ammunition units when they develop support plans. Because units must deploy quickly, they do not have time for detailed last-minute planning. For example, when a unit deploys to a maturing theater, a battalion S4/G4 may not be there to provide the unit with the required logistical information that the unit will need to perform its mission. The unit commander should know where to go and what to do in order to get logistical support. Thus, contingency planning must be done in peacetime. This planning must include the development of a detailed contingency plan and local and field SOPs.

As a minimum, the items listed below must be considered for WCTO plans. Refer to FM 100-5 for additional information. Simplified local and field SOPs should be developed to cover each item.

- Local points of contact for support: computer, engineer, signal, security, defense, transportation, POL, and C^2 (installation and field site).
- Personnel, equipment, and ammunition basic load (ABL) status charts.
- "What if" situations.
- Replacements for equipment, personnel, authorized stockage list (ASL), and prescribed load list (PLL).
- Factors affecting the mission: site location (grid coordinates), units to be supported, and stockage objectives.
- Points of contact for the turnover of Class V stocks.
- Shipment staging location and procedures.
- Organization of march units.
- Organization of duties of the advance party, the rear party, and the reconnaissance element.
- Densities and speeds for different types of moves.
- Maintenance of ammunition accountability and serviceability records.
- Command and control.
- Actions to take in the event of enemy attack.
- Maintenance procedures.
- Accident procedures.
- Refueling procedures.
- Messing procedures.
- Communications methods.
- Vehicle loading plans for personnel, equipment, and ABL materiel.
- Night operations.
- Continuity of Operations Plan (COOP).
- Enough directional signs, fire symbols, and FSU stack signs for three storage locations.
- Retrograde operations.

STANDING OPERATING PROCEDURES

DS and GS ammunition units must prepare field SOPS based on the logistical field SOPS of the C^2 element that the units will be working with. Both external field SOPS for supported units and field

SOPs for the ammunition unit itself should be prepared. It should be understood that the SOPs will have to be adapted to the actual conditions of a contingency situation. Regardless of the SOP being written, the key to useful, effective planning is to include worse-case situations.

As a minimum, typical external SOPs should cover the following items:

- Unit HNS.
- Class V WHNS.
- Engineer support.
- Transportation support.
- Communications support.
- Safety.
- How to get ammunition.
- How to turn in ammunition.
- How to protect ammunition from the elements.

As a minimum, typical field SOPs should cover the following items:

- Deployment (staging procedures).
- Field setup (to include a storage plan, perimeter defense plan, and an ASP layout plan).
- Operational procedures (to include ammunition receipt, storage, issue, and maintenance operations).
- Linkage to the C^2 element (COOP).
- Destruction plans.
- Fire-protection plans (and other safety matters).
- Retrograde.

During actual combat, there will not be much time for personnel to develop plans and procedures. Therefore, simple, realistic field SOPs are essential for completion of the unit's Class V mission and the supported unit's mission.

PREPACKAGING

To make any plan work in the changing environment of a contingency operation, everything possible must be done ahead of time. Units and personnel must realize that whatever they do not have ready to take with them, they might not have for a long time—maybe for the duration of the operation.

The most helpful action a unit can take is prepackaging. All expendable material, including all blank forms used for day-to-day operations, should be prepackaged. Such things as ASP road directional signs can be packaged and/or palletized for transport. Other expendable material includes banding, paint, stencils, and so on. The basics necessary to perform any wartime task should be prepacked. Consider using preprepared packing lists that cover a variety of METT-T environments. It may be possible to prepackage subgroups on a packing list, saving even more time.

Another critical asset to be prepackaged is a complete Class V reference library. It should include applicable transportation publications as well. Commanders must ensure that the basic manuals required to complete their wartime tasks are prepacked.

TRANSPORTATION

Since organic transportation does not permit movement of a whole unit at one time, augmenting transportation must be requested. Transportation requests are normally made to CSB headquarters. Battalion headquarters, in turn, places the requirement with the nearest MCT and/or local transportation activity. Information concerning Army motor transportation request procedures are in FM 55-10. As a minimum, the request for transportation should include the following information:

- Date of the move.
- Routes.
- Destination.
- Time and place the transportation is required.
- Number of personnel to be moved.
- Quantity, type, weight, and cube of materiel to be moved.

RETROGRADE

Retrograde of ammunition most often includes the return of unserviceable ammunition, CEA, and serviceable US ammunition to the rear. The high cost and low density of current and emerging high-technology munitions mandate the planning and development of a system to retrograde items that are not needed at this force level or that are not within repair capabilities, Retrograde operations must be covered in a field SOP.

TRANSITION TO WCTO

The transition from a peacetime mission and the move from an installation, post, camp, or activity are major steps for DS and GS ammunition units. The

transition process must be well understood and well trained by all officers and noncommissioned officers (NCOs) of these units. This understanding and training prepare the unit to deploy to its assigned area and perform its mission in less time.

The unit moves because it has been directed to or because it must—as in the case of the unit moving from a theater, post, camp, or fixed-site installation. Conventional ammunition units must be able to plan and execute contingency plans and tactical operations when moving to a new location. When a move is to be made, important considerations are as follows:

- Planning.
- Equipment and personnel.
- Transportation,
- Site selection.
- Reconnaissance.
- Area preparation and layout,
- Defense, security, and area damage control.

The command structure must base its decision to deploy a unit on the following facets:

- To where are the deployment orders (in the warning order) ?
- What is the situation (forced entry or unopposed entry)?
- What is the date and time of deployment?
- What is the support structure on the ground?
- Is deployment to be as a unit (not using advance, main, and rear parties)?
- Will deployment be in phases (using advance, main, and rear parties)?
- What organization is the point of contact in the deployment theater?
- What is the deployment mission (first ASP established at airhead or port for the theater or forward in support of a corps- or division-size force)?
- What information is briefed to the parties on their mission?
- What is the theater situation?

The warning order for deployment (moving) normally includes the general location of the area in which the unit will conduct its operations, the movement date, and a list of any special requirements or special instructions. When notified of an impending move, the company commander alerts unit personnel and begins planning for the move. The move is coordinated with the supporting battalion, the local provost marshal or MP unit, and the supporting transportation activity that can provide information and assistance. The commander determines the type of move to be made (unless specified by battalion), requests additional transportation as necessary, takes steps to phase out current operations, and plans a reconnaissance of the area.

An aid to rapid-transition deployment (movement) is the detailed contingency plan and the simplified field SOPs discussed earlier in this chapter. To ensure a successful move under stressful conditions, the unit should use the SOPs and the contingency plan to practice moving until it becomes second nature to all personnel within the unit. During this practice, the SOPs and the contingency plan should be reviewed.

POST-WCTO TRANSITION

One of the major missions that could be assigned to a DS and GS ammunition unit is stand-down operations for the theater. The major function in a stand-down operation is to retrograde Class V materiel and components (to include the shipment of CEA) back to depots, installations, and other ammunition activities outside the theater.

Retrograde operations include identifying, inspecting, repacking, marking, preparing shipment documentation, loading, blocking, bracing, containerizing, and coordinating the transport of the materiel to the port of embarkation. To support retrograde operations, a strong emphasis must be placed on the return of packaging material by using units.

It may also be necessary to reconstitute the unit's library. The basic manuals required to complete the unit's wartime tasks should be available for stand-down operations.

C H A P T E R 4

W A R / C O N T I N G E N C Y T A C T I C A L O P E R A T I O N S

This chapter provides a general description of tactical operations. It provides information on unit operations during a war or contingency operation, to include guidance on unit movement, communications, and prioritizing those actions to be taken after the move. It also covers unit defense and security, to include preparing a defense plan and an area damage control plan to support tactical operations. HNS and WHNS are significant factors in tactical operations. Finally, Army ammunition accountability is discussed.

BACKGROUND

Tactical military operations focus primarily on winning battles and engagements. These tactical operations support the operational level goal of winning campaigns and major operations. The operational level provides the vital link between strategic aims and tactical employment of forces on the battlefield. Strategic level goals employ armed forces to achieve national security objectives. To support strategic level goals, theater commanders plan and execute campaigns.

Armies normally design the major ground operations of a campaign, while corps and divisions usually fight battles and engagements. A corps commander may be a joint task-force commander. The corps commander may plan and execute a campaign to achieve strategic objectives, then the divisions and brigades fight battles and engagements and the battalions and companies attack and defend. Division commanders integrate maneuver battalions, field artillery, aviation, engineers, air-defense artillery, tactical air support, and sometimes naval fire support to accomplish brigade and division missions. Corps combine arms in a similar fashion. They employ different types of divisions, separate brigades, and cavalry requirements. They arrange CS and CSS and integrate the support of other services to accomplish their missions. Corps may be responsible for operational level planning and execution.

Tactical success depends on the ability to concentrate on many things. Some of these are as follows:

- Ensuring plans are flexible with several options. Avoid reaching culminating points before exercising other options.
- Anticipating enemy operations.
- Indirect approaches.
- Deception.
- Security.
- Speed and violence.
- Flexibility and reliance on junior leaders.
- Rapid decision making.
- Clearly defined objectives and operational concepts.
- Clearly designated main effort.
- Actions throughout the depth of the battle area.
- Joint operations with other services.

The levels of war are not finite limits with boundaries between them. Distinctions between the levels may blur because of the lethality, complexity, and tempo of the modern battlefield. Refer to FM 100-5 for additional information.

TACTICAL UNIT MOVEMENT

The unit arrives at an airport or seaport of debarkation in a theater of operations. The unit then moves to a designated marshaling area to link up with unit equipment and prepare for onward movement to its final destination. Logistical support for the unit during reception and onward movement is provided by the COSCOM or the TAACOM. Transportation services are provided by the COSCOM or the transportation command (TRANSCOM) and coordinated by the movement control element operating at the POD and marshaling areas. Units coordinate with the MCT or element for transportation support and road movement clearance. Units may move to their final destination by highway, rail, air, inland waterway, or a combination of these modes. Once the unit arrives at its final destination, subsequent movements may be made based on METT-T.

PLANNING

The intra-theater supporting logistics battalion, based on informational data, provides the warning order for displacement (moving). As stated in Chapter 3, this order normally includes the general location of the area in which the unit will conduct its operations, the movement date, and a list of any special requirements or special instructions. The move is coordinated through S4 channels with the servicing MCT. The MCT is the single point of contact to obtain additional transportation support and to coordinate routes and times for movements. Requirements for MP support are provided in the movement bid and are coordinated by the MCT.

The variables and SOPs discussed in Chapter 3 must be considered and used. Transportation considerations were also discussed in Chapter 3.

RECONNAISSANCE

After the new area has been selected, the commander should obtain planning guidance from the S4. The S4, based on the highway regulation plan and traffic circulation plan, will provide the commander information on routes available to begin planning. The commander should also (time permitting) make a personal reconnaissance of the route and the new area. If this is not possible, a map reconnaissance must be made. As a minimum, the route, the surrounding terrain, and the road network in the new area are evaluated. The strength and clearance of underpasses; the durability, capacity, and width of roads and bridges; and terrain characteristics that would favor an ambush of the convoy en route must be noted. A thorough reconnaissance is extremely important, as the results determine defense planning for the convoy en route and may even mean a different route must be used. Technical aspects of route reconnaissance are in FM 5-36.

AREA PREPARATION

After reconnaissance of the route and the new area, an advance party (METT-T dependent) is sent to mark the route and to prepare the new area for occupancy. The advance party usually consists of personnel from all sections of the unit. It is advisable to include mess personnel and equipment in the advance party so that the main body can be fed a hot meal when it arrives at the area. There must be enough personnel in the advance party to carry out the following tasks:

- Clear the route of obstacles and warn the main body of known or suspected enemy activity along the route.
- Under chemical or nuclear conditions, check the area for chemical and radiological contamination by conducting chemical agent detection and radiological monitoring operations.
- Place route markers at appropriate points.
- Assign guides from each platoon or section to guide vehicles within the new area to their assigned area.
- Secure the new area.
  - Clear the area of enemy forces.
  - Check the area for mines and booby traps.
  - Set up and staff temporary outposts.
  - Lay communications wire from the CP to defensive positions and work areas.
  - Establish an external communications support area.
  - Prepare positions for crew-served weapons.
  - Prepare hasty fortifications to cover likely avenues of approach.
  - Prepare kitchen sumps and latrines.

Depending on METT-T, and after the main body or unit arrives at the specified grid coordinates given in the warning order, the unit must set up the area.

SET UP THE AREA

The CSB commander must be informed of the new location. The commander is also briefed on the situation at the new area, the units supported, and any problems or specific requirements relating to the support mission. Other tasks to be performed upon arrival at the new area include the following:

- Complete perimeter defense and coordinate with the base-defense operations center or base-cluster operations center.
- Prepare for technical operations and concurrently establish liaison with supported units. The company will revise its support plans or devise new ones to meet any new requirements.
- Complete housekeeping facilities for unit personnel.
- Coordinate defenses with adjacent units.

CLOSE OUT THE MOVE

In the last phase of unit movement, the rear party (METT-T dependent) closes out operations at the staging area. The composition of the rear party depends on how much work is required to close out operations at the staging area. Communications are kept up between the rear party and higher headquarters until the CP at the new area is operational.

COMMUNICATIONS

Effective communications are essential to the mission. A good communications and data transfer system also eases control and direction of the unit by its higher headquarters. It permits transmission of vital tactical information, NBC attack warnings, radiological fallout warnings, rear-area security information, and changes in the situation that may increase or decrease the unit's workload. The most secure means of communications available must be used. Since radio communications are relatively insecure, they may be used only when no other method will suffice.

NEEDS AND MEDIA

Information needs to flow between DS and GS ammunition companies and their headquarters. Refer to Figures 4-1, 4-2, and 4-3 on pages 4-4, 4-5, and 4-6. A number of communication media are available (for example, tactical radio, telephone, and automatic data processing equipment [ADPE] to ADPE). The actual hardware varies depending on the situation and available resources.

Battalion

Ordnance ammunition groups or battalions and CSGs or CSBs must be able to exchange command, logistical, and administrative information. The medium used to exchange information must allow lateral and vertical communications between the battalion commander, staff elements, and subordinate companies. If tactical radio is used, the battalion or group headquarters serves as the net control station for the command net and the administrative logistics net.

The battalion or group materiel section may communicate with subordinate support companies on the battalion's logistics administrative net. Specific communications procedures are found in group or battalion SOPs, Communications-Electronics Operation Instructions (CEOIs), letters of instruction (LOI), or operations orders.

Company

The company has several communications needs that affect its mission. The unit must communicate with the group or battalion materiel section to discuss mission-related information. The control section may need to communicate directly with supported units or the supporting MMCs. If so, direct communication is coordinated and approved through local agreements between the supported unit, the MMC, and the support group or battalion. The method used to communicate and the net control responsibilities are designated in the agreement.

RESPONSIBILITIES

In today's arena, communications personnel include radio operators, switchboard operators, ADPE to ADPE operators, and personnel to lay the wire. Some of these personnel are communications specialists provided by the TOE. Other personnel perform communications duties in addition to their primary duties. All of the above personnel, to include any other unit personnel who may become involved in communications networks, must be trained in the use of mobile subscriber equipment. Units discussed in this manual may not be authorized school-trained communications personnel. Refer to appropriate TOE for details.

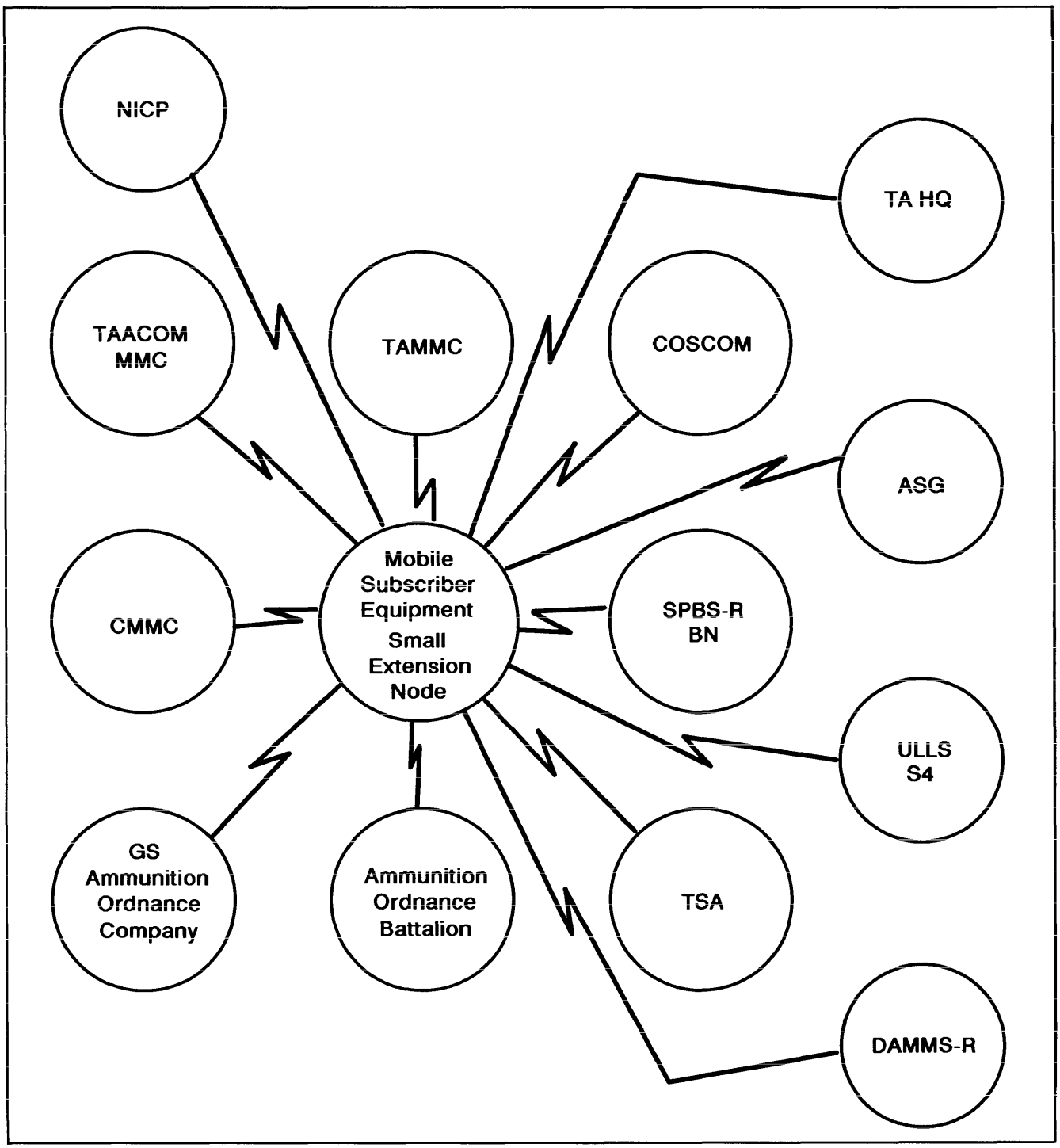

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Figure 4-1. Theater level GS ammunition company communications (radio, wire, and ADPE to ADPE).

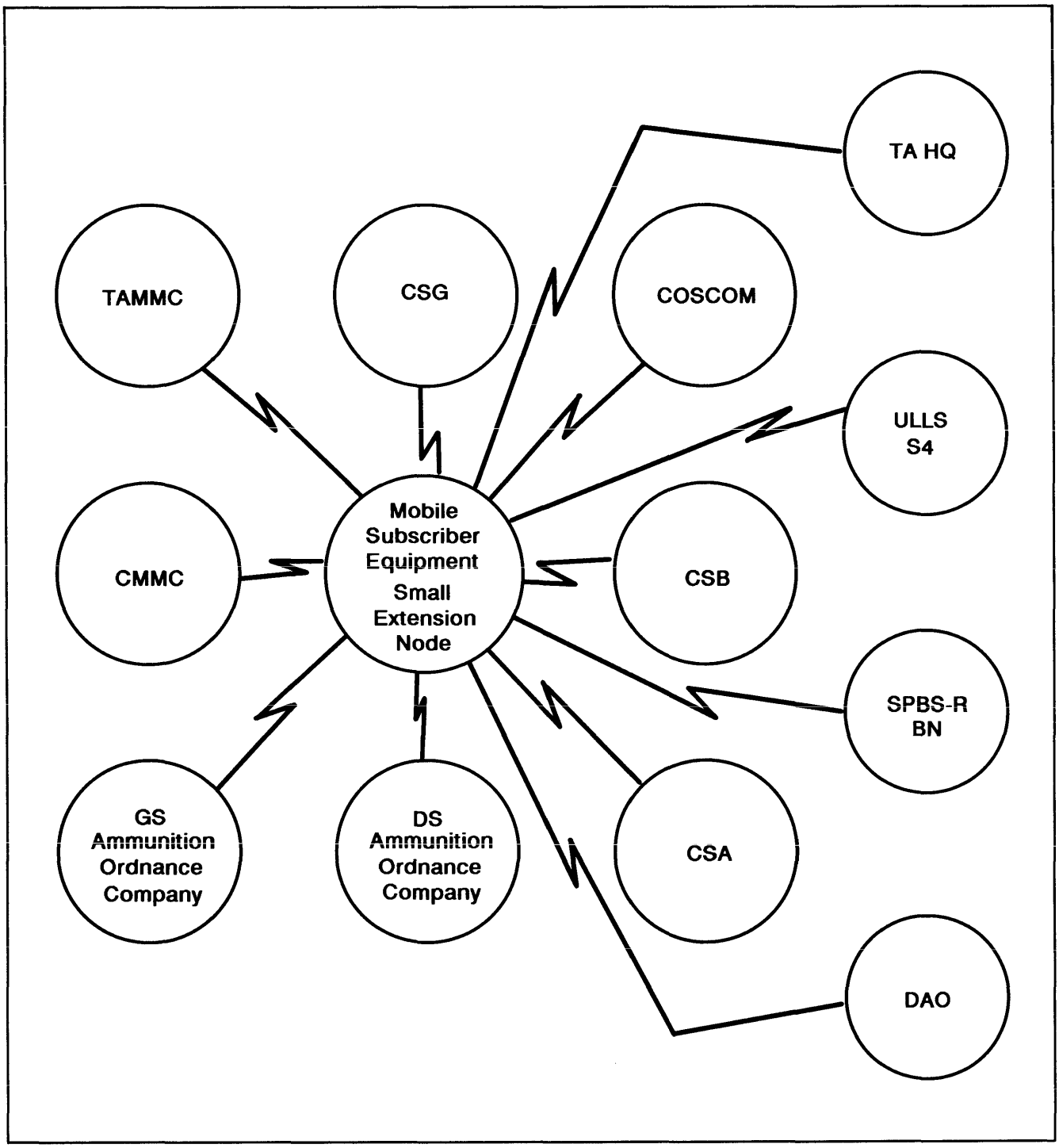

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Figure 4-2. Corps level GS ammunition company communications (radio, wire, and ADPE to ADPE).

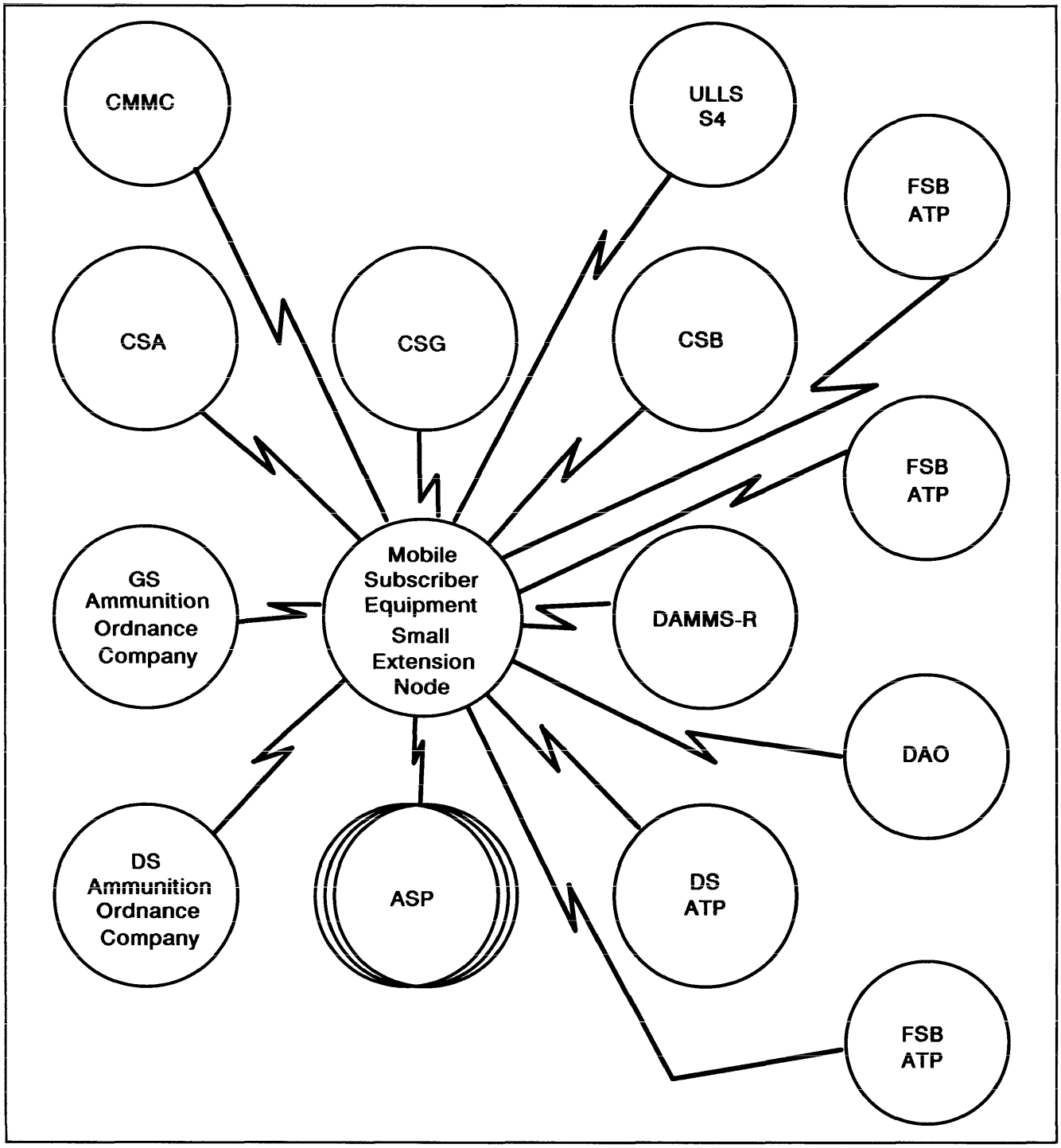

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Figure 4-3. DS ammunition company communications (radio, wire, and ADPE to ADPE).

Communications Officer

The position of communications officer may be an additional duty. The battalion or company communications officer (or equivalent position) allocates the type and extent of electrical communications within the command. Unit communications policies must conform to those established by higher headquarters.

Radio Operators

Radio operators are responsible for the proper use of the radio, to include using correct radio procedures and safeguarding communications security material. Operation of the radio is frequently an additional duty. Good operators are thoroughly trained in communications discipline and operation of the radio control panel. Emphasis on military communications discipline and functions of the control panel are absolutely essential. Operators must:

- Be trained and proficient in the use of CEOIs.
- Be responsible for performing operator preventive maintenance checks and services on radio equipment.
- Be familiar with the capabilities and limitations of the radio equipment.
- Be familiar with the other facilities incorporated into the radio net of which the unit is a part.

Switchboard Operators

Switchboard operators install, operate, and maintain the unit switchboard. They must be trained to install and operate field telephone equipment. They must also know the capabilities and limitations of the equipment and of the system in which it will operate. Switchboard operators also serve as unit wire personnel. They install and maintain field wire communications systems and perform operator maintenance. They may need help from other unit personnel during initial installation.

METHODS OF COMMUNICATION

Unit communications methods usually include data transfer, radio, wire, messenger, visual, and sound. The methods used in any one unit are limited by the personnel, equipment, and transportation authorized that unit by the TOE. Units cannot depend entirely on one method as the sole source of communications. Whatever method is chosen must provide maximum reliability, flexibility, security, and speed with a minimum of effort and material.

COMMUNICATIONS-ELECTRONICS OPERATION INSTRUCTIONS

CEOIs are a type of combat order issued for the technical control and coordination of communications within a command. CEOIs cover codes and ciphers, radio call signs and frequencies, the telephone directory, and visual and sound signals. The group or battalion communications-electronics officer prepares CEOIs. These instructions must conform to the CEOIs of the next higher headquarters. Units attached or assigned to a group or battalion headquarters use only extracts from the CEOIs. CEOIs are classified; therefore, extracts must be safeguarded accordingly.

Communications procedures that can be standardized are made a part of the unit SOP. The SOP must not violate instructions from higher headquarters. Refer to AR 105-64 and FM 24-16 for details.

SECURITY

Communications security (COMSEC) measures prevent or delay unauthorized persons from getting information of military value from communications sources. The unit commander must ensure that COMSEC measures are understood and followed by all personnel. Unit personnel must be concerned with three types of COMSEC measures: physical, cryptological (commonly called crypto), and transmission. Refer to AR 380-40 and FM 34-60 for details on COMSEC. The commander must specify in the unit SOP precisely how COMSEC violation reports are to be made.

UNIT DEFENSE AND DAMAGE CONTROL

UNIT DEFENSE

Ammunition units cannot provide security for ammunition storage areas, so detailed planning and training in defensive operations are required, and should be according to FM 71-100, FM 100-15, FM 100-5, and the EAC portion of FM 90-14. Rapidly moving tactical operations, pockets of enemy resistance, and enemy infiltration that result from widely spread tactical formations will be the rule rather than

the exception. Units in the rear areas are open to enemy group action.

Defensive planning must take into account all technical mission requirements so that they run as smoothly as possible under adverse conditions. Plans to meet any type of enemy attack must be put in the unit security SOP. These plans must be revised as necessary and rehearsed regularly to ensure that all personnel know their defensive duties and responsibilities.

At times, the defense of an ammunition unit may be at the expense of mission activities. The commander must continually evaluate mission requirements in light of the enemy situation. Security must provide early warning so that unit personnel have enough time to move to prepared defensive positions.

A defense plan is published as an integral part of the unit security SOP. For detailed guidance, see FM 19-30. Defense plans and area damage control plans are reviewed and coordinated at the theater level. The defense plan includes all routine security and defensive activities, to include the following:

- Designation of specific responsibilities.
- Primary and alternate means of communications.
- Emergency destruction procedures.
- Coordination and identification of mutually defensive procedures with local units and higher headquarters.
- Active and passive individual and unit security and defensive measures, such as COMSEC, operations security, and noise and light discipline.
- NBC defenses.

The defense plan must also incorporate the fundamentals of defense as prescribed in the FM 3-series chemical manuals. However, these fundamentals should be adapted to the peculiarities of an ammunition unit. As a minimum, the plan should detail procedures and delineate responsibilities, to include the following:

- Surveillance and security.
- Organic and supporting weapons.
- Preparation of positions.
- Communications.
- Reserve force.
- Rear-area protection.
- NBC defense plan.

DAMAGE CONTROL

Along with the defense plan, the unit commander must develop an area damage control plan. This plan lists those measures to be taken by the unit before, during, and after a mass attack or natural disaster. The area damage control plan should also provide those measures to be taken during an NBC attack, to include composition of the emergency decontamination squad and the light-rescue squad. This plan minimizes casualties and destruction resulting from mass attack or natural disaster, speeds recovery, and reestablishes support. Training and practice alerts for attacks or natural disasters should be conducted using the plan. Dispersion, camouflage, fortification, emplacement construction, and other actions common to defensive operations must be covered if training is to be effective.

During an attack or disaster, emphasis is on survival and assistance to the injured. After the attack, the emphasis is on resuming operations, to include the following:

- Regaining control.
- Assessing damage.
- Treating and evaluating casualties.
- Clearing isolated and danger areas.
- Conducting chemical agent detection operations and monitoring for radioactivity.
- Making surveys.
- Reporting the results.
- Salvage operations.
- Emergency resupply.
- Reestablishing communications.

Furthermore, the unit must remain alert to the possibility of a follow-up attack by enemy airborne troops, air-landed forces, or guerrillas. The unit must be prepared to defend itself and provide personnel for the area-damage control forces. Regular enemy forces or guerrillas may try to capitalize on the surprise and confusion caused by a mass attack or natural disaster. The unit must be capable of quick and proper reaction.

Trained and equipped teams to assist in damage control operations in other areas are required. Company-sized units must organize, train, equip, and have available at all times one emergency decontamination squad and two light-rescue squads. These squads must be equipped and organized according to the mission to be performed and the operational procedures of the command. Equipment is provided by

TOE, common tables of allowance, and tables of distribution and allowances.

Company area damage control plans make up a portion of the CSB plan. The CSB security controller prepares and implements plans for a specific area. The security controller coordinates these plans with other units. Unit plans may be modified as directed by the CSB. Instructions for submitting unit plans and necessary modifications to the submitted plans are provided by CSB headquarters.

HOST-NATION SUPPORT

HNS is provided by local civilian personnel and uniformed allied services of the host nation. These personnel work in jobs normally performed by service troops and the conventional ammunition specialist. HNS and WHNS should be considered as a means of augmenting US military resources wherever military operations are conducted. Policies for the procurement and use of such labor-support activities are established by theater headquarters; national policies; the framework of treaties, agreements, and international law; and current security regulations. Detailed information concerning the procurement, management, and use of HNS and WHNS in a theater of operations is in FM 100-10, DA Pamphlet 690-80, and AR 34-4. Information is also available from any area civil affairs office. WHNS organizations are also discussed in Chapter 1.

RECRUITING HOST-NATION CIVILIAN SUPPORT LABOR

The extent to which HNS is used depends upon the conditions in the particular area. The assistant chief of staff for civil affairs, G5, or the director of civil affairs can provide information on the availability of laborers and the category of skills found in the area. The battalion materiel office normally procures HNS. Many services may be provided entirely by the local population, if the local population is sympathetic and willing to support our forces. The use of local civilians must be controlled carefully. Strict security precautions must be enforced if significant insurgent elements are suspected.

Every effort should be made to secure the cooperation of the local population and to maintain good relations. Personnel supervising HNS should be specifically indoctrinated in the habits, customs, laws, language, religion, economics, and political conditions in the area of operations. Supervisory personnel must take time to explain the work and the reasons behind certain methods of operations. If possible, the type of work in a locality should not be changed.

The two general types of HNS labor are static and mobile. Static laborers are employed within or near the area of their residence. Mobile laborers are organized into units with a cadre of military supervisors and moved from place to place as required. Mobile laborers are usually long-term employees.

In nuclear warfare, and operating within prescribed civil affairs policy guidance, civil defense and disaster relief measures must be based on the maximum use of the civilian population and existing civilian organizations.

As authorized by theater policy, HNS may be found in any of the following ways:

- By contracting with existing commercial firms to provide certain services by the hour or week.
- By incorporating HNS into conventional ammunition units with C^2 by the US military. This is **a** very touchy point in many international host-nation agreements, because host nations generally want C^2 over their own people. Units are formed and local personnel supervised based on the policies of the theater commander.
- By organizing entire units of local civilians and using them like corresponding military units, as long as the Geneva Convention of 1949 is not violated.

USING HOST-NATION CIVILIAN SUPPORT LABOR

In US-commanded conventional ammunition units, occupations in which HNS might be used include cook, cook's helper, kitchen police, truck driver, and general laborer. Occupations are limited due to the security and training considerations of ammunition units. Care must be taken to ensure that using HNS does not jeopardize the security of military forces and operations. Thus, all individuals must be properly identified. The theater commander prescribes identification cards or passes to be used and the controls and accounting procedures for issuing them to local civilians. Local civilians must be closely

screened by the responsible agency. The following factors should be considered when employing HNS labor:

- Language differences increase training requirements and the need for supervision.
- Precautions must be taken to prevent pilferage of military goods.
- The quality and quantity of work accomplished are dependent upon attitude and motivation. Individuals who like or accept Americans and understand the reasons for their employment perform better than those who work because they must.
- The location of the operations and the hazards associated with the location. The use of HNS in the combat zone is greatly restricted.
- Customs and habits of the civilian populace (to include religious holidays and festivals) may cause absences.
- Sanitary, health, and hygiene training may be necessary.
- Analyze the risk and the possible ramifications of employees failing to show up for work. Can the mission be accomplished without them? If so, how?
- Defensive procedures and equipment (such as protective masks and chemical clothing) for HNS employees must be coordinated by the CSB and considered during brigade recruiting.
- The logistical support associated with using HNS. This support includes food, clothing, shelter, and transportation.

AMMUNITION STOCK ACCOUNTING SYSTEM

To make proper decisions in managing the complex flow and resupply of ammunition in a theater of operations, ammunition stock accounting and control managers need timely and accurate stock status reports. In wartime, reliable automation and communication systems are vital in maintaining visibility of stocks and in ensuring that the user receives the right kind and quantity of Class V support at the right place and at the right time.

This section describes SAAS capabilities and also explains the accountable records used in the manual stock accounting system. Detailed manual stock accounting procedures are in DA Pamphlet 710-2-2.

STANDARD ARMY AMMUNITION SYSTEM

SAAS is a multicommand, computerized Standard Automated Management Information System (STAMIS) that integrates Class V management and reporting data from the storage area to the TAMMC. It is used to manage the stock control and accounting process involved with Class V ammunition and guided missiles and large rockets (GMLRs), their components, and packaging materials. SAAS is also used to manage CEA that is not entered into the Worldwide Ammunition Reporting System (WARS) and GMLR databases without prior coordination and approval with HQDA and the appropriate national inventory control point (NICP).

SAAS MMC Level

SAAS is managed by three headquarters—TA, TAACOM, and COSCOM. The TA uses a SAAS computer to manage total theater assets and to interface with the NICP. The TAACOM uses SAAS mainly to manage ammunition assets and consolidate stock status reports received from the TSAs. The COSCOM uses SAAS to manage ammunition assets and to consolidate stock status reports received from the CSA/ASP SAAS. Both the TAACOM and the COSCOM send consolidated feeder reports to the TA SAAS level (if operating dependently) or directly to the NICP (if operating independently).

SAAS at the TAACOM and COSCOM MMCs provides summary stock status information on total theater assets (reported from storage locations) to the TAMMC. SAAS at the TAMMC is also used to compute authorized levels of ammunition and to maintain the status of ammunition on hand and shipments en route to and within the theater of operations. It is at this level, that the TAMMC uses SAAS to prepare and provide the NICP with a consolidated theater input to WARS and GMLR reports for conventional ammunition. WARS and GMLR reports are submitted periodically to the United States Army Armament, Munitions, and Chemical Command (AMCCOM) and United States Army Missile Command (MICOM) through the NICP. It is through SAAS at the TAMMC that all Class V assets for the theater are requisitioned from CONUS. Utilizing SAAS, the TAMMC provides theater-wide management and allocation of total theater assets. When assets are delivered at the POD, the TAMMC and/or the CMMC direct shipments to the appropriate TSA, CSA, or ASP.

SSA SAAS Level

Supply support activity (SSA) SAAS is an ammunition stock control and accounting system used at the storage location (ASP, CSA, and TSA). SSA SAAS interfaces with the SAAS level located at the COSCOM and TAACOM MMCs. SSA SAAS provides the information needed to conduct day-to-day ammunition storage and management operations at the storage location. These operations include receipt, issue, retrograde, turn-in, shipment, rewarehousing, and inventory control procedures.

SSA SAAS provides ammunition managers, in peacetime and wartime, access to automated stock and accounting records. The storage location prepares management and accounting reports by accumulating required information in the reports generation files. These files include monthly and quarterly feeder data required by the TA SAAS level for the WARS and GMLR reports. These reports are required by SAAS functional documentation, AR 700-22, and AR 710-9. After initial input, data supplied for WARS and GMLR reports will be instantaneous, as transactions take place, from the SSA SAAS level to the TA SAAS level and then to the NICP.

Bn SAAS Level

Bn SAAS is a modified SSA SAAS (software) automated system that is used at the battalion to view the Class V resupply process. Based on the workload generated by receipts, issues, retrogrades, and shipments at supported storage facilities, battalion personnel are able to determine the type and amount of additional support (personnel and equipment) needed at the supported storage facilities so that they can continue their Class V mission.

DAO SAAS Level

The DAO, in coordination with the ATP section of the FSB and the DS ammunition company, provides staff supervision over all of the ATPs. The DAO, or the DAO representative at each ATP, validates all ammunition requirements before they are filled. The DAO also monitors ammunition transfer operations to ensure that unit requirements stay within the controlled supply rate (CSR). DAO SAAS is an automated management and decision tool designed to help the DAO and other personnel in the resupply of divisional and nondivisional units. DAO SAAS provides visibility of Class V stocks and maintains ammunition data that are needed rapidly to determine resupply requirements.

Functions and capabilities of DAO SAAS include CSR allocation and monitoring, shipment monitoring, summaries and divisional internal reports, and ammunition requirements determination. Along with an effective communications interface, these capabilities provide a SAAS interface for the DAO and the CMMC to support Class V requirements. At a later date, automation will also provide better Class V support to the division through an automated ammunition data interface between the ASP, the ATP, and the supported units. DAO SAAS software operates on ADP hardware. The DAO SAAS system also supports the resupply requirements of separate brigades and regiments.

References

Functional procedures and operational guidance for using SAAS MMC for asset visibility and status management of Class V materiel are in TM 38-L63-11-1. This manual describes how to prepare input documents. It also describes processing techniques, formats, and the use and distribution of the output documents of the various operational modules of the system.

SSA SAAS detailed stock control procedures for the receipt, issue, retrograde, shipment, turn-in, inventory, and management of Class V materiel are in ADSM 18-L69-AJD-UNI-EM. Manual procedures are in DA Pamphlet 710-2-2, Chapter 25, and AR 710-2.

DAO SAAS functional procedures and operational guidance for automated management of Class V assets are in ADSM 18-L6C-AJE-UNE-EM. ST 9-38-1 provides procedural guidelines for operating SAAS at the DAO office and at the ATPs. AR 710-2 and DA Pamphlet 710-2-2 contain manual Class V procedures.

Local supplementation of the procedures in any of the above regulations, manuals, technical manuals, and pamphlets is not authorized. These supplemental restrictions are imposed by HQ DA.

AMMUNITION STOCK ACCOUNTING RECORDS

SSA SAAS files make up the stock accounting records required by regulation. These stock accounting records are updated by data inputted into the system by SAAS operators. These data come from documents received on receipts, issues, shipments, inventories, and rewarehousing of Class V assets, salvage material, residue, packing material, components, CEA, and ammunition-peculiar equipment (APE) and gauges.

The stock accounting records listed in this section are for the COOP. Although these documents are listed as stock record sets, stock accounting documents, and storage documents, during WCTO they may not be used or be available. However, a facsimile-formatted document (one that contains all of the information required but may be in a different format) would be on file. If for some reason the SSA SAAS goes down and there is no COOP, the records discussed in this section will be needed for manual operations in order to handle Class V stock accounting procedures.

Stock Record Set

A stock record set for a single ammunition item is made up of one or more of the following forms filed together to reflect asset status:

- DA Form 1298 *(Due Out Record).*
- DA Form 4999 *(Due In Record).*
- DA Form 5203 *(DODIC Master/Lot Locator Record).*
- DA Form 5204 *(Serial Number Record).*

Stock Accounting Documents

All documents affecting the accountability and status of Class V stocks, including salvage material and CEA, are maintained and controlled by the SSA SAAS-level activity. As a minimum, the following documents must be maintained and controlled effectively to ensure that a viable accounting process is in effect at each SSA:

- SF Form 364 *(Report of Discrepancy [ROD]).*
- DD Form 1348 *(DOD Single Line Item Requisition System Document [Manual]).*
- DD Form 1348-1 *(DOD Single Line Item Release/Receipt Document).*
- DD Form 1911 *(Courier Receipt).*
- DA Form 444 *(Inventory Adjustment Report).*
- DA Form 581 *(Request for Issue and Turn-in of Ammunition).*
- DA Form 1687 *(Notice of Delegation of Authority-Receipt for Supplies).*
- DA Form 2000-3 *(Installation Inventory Count Card).*
- DA Form 2064 *(Document Register for Supply Actions).*
- DA Form 2415 *(Ammunition Condition Report).*
- DA Form 4508 *(Ammunition Transfer Record).*
- DA Form 5037-R *(Inventory Control Listing).*
- DA Form 5209-R *(XBH/XBC Record).*
- DA Form 521 O-R *(XBT Record).*
- DA Form 5211-R *(XAM Record).*

Storage Documents

Without any attempt to reflect an all-inclusive listing, other documents and forms commonly used in an ammunition storage facility are as follows. Refer to DA Pamphlet 710-2-2, SB 742-1, and AR 55-355 for detailed information.

- DD Form 626 *(Motor Vehicle Inspection).*
- DD Form 836 *(Special Instructions for Motor Vehicle Drivers).*
- DD Form 1387 *(Military Shipping Label).*
- DD Form 1387-2 *(Special Handling Data/ Certification).*
- DD Form 1575 *(Suspended Tag-Materiel).*
- DD Form 1575-1 *(Suspended Label-Materiel).*
- DA Form 3020-R *(Magazine Data Card).*
- DA Form 3151-R *(Ammunition Stores Slip).*

CHAPTER 5

WAR/CONTINGENCY AMMUNITION STORAGE OPERATIONS

The guidelines provided in this chapter cover a variety of situations (METT-T dependent) within a theater of operations. They may be modified to meet safety requirements as well as the need to protect ammunition from environmental conditions (sand, sun, moisture, and so on) along with being able to perform the mission. This chapter provides general information on stacking ammunition for inside or outside storage. It also provides information on maintenance operations, to include maintenance concepts, categories, and SOPs. Ammunition surveillance activities, to include the observation, inspection, investigation, and classification of ammunition and missiles, are discussed. Storage operations associated with unserviceable ammunition, suspended ammunition, CEA, salvage and packaging materials, and chemical munitions are discussed. Finally, night operations and sling-out operations are discussed.

AMMUNITION STACKING

Ammunition may be stored inside or outside. It may be palletized or unpalletized. It may be stored on PLS SCs or on trailers. When stacking ammunition, the site location and the type of foundation upon which the stack will rest must be considered. The foundation may be a hardstand, the floor of a magazine or building, or on the ground in open-field storage. With any of these possibilities, the firmness and ability of the foundation to sustain the weight of a stack under all weather conditions. should be the prime consideration. Ammunition stacked on an inadequate or improper foundation may topple or sag. Inspectors should look for settling or shifting stacks so that corrections can be made before damage results. When applicable, the storage drawings prescribed by AMC Drawing 19-48 -75-5 should be used in approved magazines.

DUNNAGE

Dunnage used during WCTO is based on judgment and METT-T. The proper use of dunnage increases stack stability. Unpalletized ammunition stored inside is stacked on dunnage that is 2 inches by 4 inches to ensure stability and to allow air circulation around and under the stacks. Cleated ammunition boxes and crates, when stacked, allow air to circulate between the tiers. When cleated boxes are stacked, strips of lumber that are 1 inch by 2 inches are placed on every fourth layer of boxes. When uncleated boxes are stacked, strips of lumber that are 1 inch by 2 inches are placed on every layer. Refer to TM 9-1300-206 for more information.

Unpalletized ammunition stored outside is normally stacked on dunnage that is 4 inches by 4 inches and 6 inches by 6 inches to ensure proper air circulation. Stacks may have to be limited in height due to rough or unstable terrain. An overhead cover should

be provided, if possible. Eighteen inches of airspace should be maintained between the top and sides of the ammunition stack and the cover itself.

STACKS

Ammunition should be stacked so that the markings on each container can be read without moving boxes or climbing on the stacks. Normally, only one lot of ammunition is placed in the same row, However, if it is necessary to place more than one lot in the same row, a line of separation between the lots must be clearly indicated and each lot clearly marked. How to stack specific items of ammunition is given in TM 9-1300-206.

The height of a stack is determined by the size, weight, and height of the packages; available storage space; quantity-distance requirements; height of the barricade; and the MHE available. When stacking is done by hand, packages should be no higher than shoulder height. The type of foundation and the weight of the materiel to be stacked will also have a direct bearing on the height. For heavy materiel, care must be taken to ensure that the bottom row is not crushed and that there is enough dunnage to keep the bottom row off the ground.

PALLETS

Palletized ammunition reduces personnel requirements, simplifies sorting and accounting, and aids in storage and stacking. Therefore, the banding on pallets should not be broken as long as MHE is available to move the pallets. Artillery ammunition may go as far forward as the firing site before the pallet banding is broken. There should be enough space around stacks to accommodate MHE and transport vehicles.

LOT NUMBER SEGREGATION

Ammunition is stored by lot number. Segregating ammunition by lot number permits easy marking of suspended lots, aids in making accurate inventories, and speeds issue operations. Small lots should not be allowed to accumulate.

MAINTENANCE AND SURVEILLANCE OPERATIONS

MAINTENANCE OPERATIONS

Maintenance of Class V items includes those actions necessary to ensure that stocks are serviceable or that unserviceable stocks are restored to a serviceable condition, Maintenance responsibilities are assigned to ammunition units based on the unit's primary mission and the availability of personnel, skills, time, tools, equipment, and supplies.

For DS units, maintenance operations during WCTO are based on METT-T. The preservation, packaging, marking, and minor spot-painting of items is the norm, but judgment should be used if the situation calls for more than minor maintenance. The GS unit in the TAACOM may have time to perform maintenance that is above the minor level.

Ammunition maintenance planning must be aligned closely with the operational needs of the supported units. Maintenance planners must consider realistically the availability of supplies and maintenance resources, A decrease in ammunition maintenance increases the amount of ammunition taken from the supply system. Conversely, the inability of the supply system to replace unserviceable ammunition requires a greater maintenance effort. Proper maintenance, as well as proper storage and handling of ammunition, increases readiness, reduces supply requirements for replacements, and conserves resources for other purposes. The maintenance planner must recognize the interdependence of maintenance and Class V support. If an ASP is to perform care and preservation, Appendix D provides guidance on setting up a care and preservation line.

Maintenance Concepts

Combat units require serviceable ammunition. Maintenance of Class V stocks is a necessary, vital task that must be performed in WCTO in order to maintain a high state of readiness. Maintenance ranges from minor operations, such as cleaning and rust removal, to major operations, such as complete renovation. Provisions must be made to do as much maintenance as possible at the storage location. In some cases, ammunition will have to be evacuated for maintenance. However, since the movement of ammunition involves not only safety but also tremendous tonnages, it is not possible to adopt a maintenance program geared totally to evacuation.

When operating in the rear area during WCTO, DS and GS units assume a more active role in maintenance programs. Issue and receipt activities in hostile, forward locations will probably preoccupy a unit. Therefore, maintenance functions will be limited to packaging and preservation operations, such as replacing broken banding or minor pallet repair or replacement.

Maintenance Categories

Class V maintenance is divided into four categories: organizational, DS, GS, and depot. Organizational maintenance is performed by all activities that have ammunition on hand, including using units. Organizational maintenance in the using unit is usually performed with the technical assistance of ammunition units. DS maintenance is performed by ammunition companies in the theater of operations having DS capabilities under TOE 09483 L000, GS maintenance is performed by ammunition companies in the theater of operations having GS capabilities under TOE 09488L000. If items require depot maintenance (such as modification, explosive component replacement, or complete renovation), the ammunition is packaged and evacuated to a depot. Some depot-level conventional ammunition maintenance operations are conducted by contract labor.

All DS and GS companies with storage and issue missions must be equipped to perform maintenance functions. The tools, equipment, and supplies needed to support each category of maintenance are included in each unit's supply and equipment list. APE necessary for specific operations is listed in the appropriate depot maintenance work requirements (DMWRs).

Maintenance Standing Operating Procedures

All maintenance operations are performed according to an approved maintenance SOP. Guidelines for preparing maintenance SOPs are in TM 9-1300-250. Valuable guidance may also be available from a unit with similar missions and responsibilities, the DMWR, or experienced personnel. When local nationals are involved in maintenance operations, the SOP is written in their language as well as in English. Refer to Appendix E for guidance on safety measures to include in the SOP.

SURVEILLANCE OPERATIONS

Ammunition surveillance is the observation, inspection, and classification of ammunition and its components during movement, storage, and maintenance operations. It also includes inspection equipment, facilities, and operations. Surveillance activities are conducted by all theater activities that store, maintain, dispose of, or ship ammunition and its components. Surveillance ends only when the ammunition is expended or destroyed.

HQ TA is responsible for general supervision of ammunition surveillance in the theater of operations. The CSB or CSG closely supervises this function in its command. In established theaters of operation, surveillance activities are under the control of DA civilian (DAC) quality assurance specialists (ammunition surveillance) (QASASs) who are assigned to major Army headquarters (AR 702- 12). Within theater ammunition units, surveillance is performed by attached civilians and assigned military inspectors.

QASASs are civilian inspectors who received 18 months of technical training and then entered into an apprenticeship. Throughout their careers, they receive additional, updated school training. QASASs are supplemented by military inspectors (MOS 55B).

The commander of any ammunition battalion must administer a quality assurance, ammunition surveillance program that covers all ammunition operations assigned to that command. The QASAS in charge has the overall responsibility for this program and reports directly to the commander. Since their training is much more extensive than that of the military inspector, QASASs perform the more complicated inspections and most functional tests. QASASs certify the results of any inspections or tests performed by the military inspectors. In some commands, certain inspection results and functional test reports are signed only by QASASs.

Surveillance Functions

Ammunition inspectors perform the following duties:

- Inspect storage buildings, outdoor storage sites, and field storage sites to ensure that they comply with all storage standards.
- Inspect surrounding areas for fire hazards and other nonstandard conditions.
- Look for nonstandard conditions that could speed up the normal deterioration rate of the items in storage.
- Teach surveillance and ammunition safety.
- Prepare and maintain proper correspondence, records, and reports to cover all surveillance activities. Surveillance records and reports are listed in SB 742-1.

- Observe, inspect, and investigate to determine the current degree of serviceability of Class V ammunition and components.
- Monitor methods of storage, handling, and maintenance and recommend changes to increase safety and operational effectiveness,
- Recommend to the commander the controls needed to maintain approved standards of quality.
- Act as technical advisor to the commander on all ammunition surveillance matters.
- Inspect and investigate to determine the quality, safety, and deterioration of ammunition.
- Help investigate ammunition accidents.
- Help plan, coordinate, and administer the explosives safety program. This program includes review, evaluation, and inspection of all operations, procedures, equipment, and facilities used with ammunition and explosives operations to ensure application of and compliance with pertinent safety standards and criteria.
- Help plan the construction of storage facilities and/or field storage areas based on current quantity-distance requirements and storage criteria.
- Prepare and maintain accurate records of all observations, inspections, and investigations.
- Maintain files and indexes for all drawings and specifications covering ammunition and methods of packing and storing.
- Inspect all incoming and outgoing shipments of ammunition for sabotage devices; proper blocking, bracing, and loading; condition and serviceability; and compliance with existing instructions and regulations.
- Inspect dunnage used and methods of storage for compliance with specifications, drawings, and safety regulations.
- Furnish technical advice to the unit's operating elements regarding safety.
- Inspect for compliance with existing regulations all facilities and/or field storage areas and the methods used to store, handle, ship, assemble, load, preserve, maintain, salvage, and destroy ammunition.

AH surveillance functions are performed according to the procedures in SB 742-1, applicable technical manuals, and other applicable supply bulletins.

Surveillance Inspections

In accordance with SB 742-1, the following surveillance inspections are performed by QASASs and military inspectors:

- Receipt inspections, to include depot transfers, field returns, and CEA.
- Periodic inspections (cyclic).
- Storage monitoring inspections.
- Special inspections.
- Preissue inspections.
- Verification inspections.
- Ammunition condition code inspections,

Serviceability Standards. The object of an inspection is to find any deterioration and determine the degree of serviceability of the item inspected; that is, whether the item inspected is serviceable as it stands, requires maintenance, or must be rejected. Before inspecting an item, the inspector should be familiar with all available information about the item, including its components, packaging, and the characteristics of the weapon in which it is used. Serviceability standards references are in SB 742-1.

Inspection procedures include observation, physical tests (such as gauging or strength tests), and functional tests. Unserviceability can usually be detected by casual observation. As a general guide, Class V munitions must not have any defects that would alter their characteristics, make them unsafe, or make them perform in any way other than for what they were designed. The inspector must determine whether any defects found can be corrected.

Serviceability is not to be assumed from the fact that the ammunition can be fired safely in the weapon for which it was designed. In addition, it must function correctly, the velocity and pressure must be within prescribed limits, and any fuze or detonator present in the projectile must function correctly.

The prime enemies of ammunition are heat and moisture. They affect all ammunition components to a varying degree. Deterioration is faster when moisture is combined with a rise in temperature. Inspectors should be especially watchful for indications of moisture, rust, or corrosion on projectiles and fuzes; corrosion and cracks on cartridge cases; deterioration of propellants; loose closing caps; and moisture or dampness inside containers.

Physical Defect Standards. Evaluating the acceptability of materiel that shows deterioration or damage is a decision that depends upon the training, experience, and judgment of the inspector. The deterioration of materiel in storage is natural. It varies

according to the type of protective coating, packaging, and storage conditions. However, deterioration is progressive. It goes from being incidental to minor to major, and possibly to a critical nature if no maintenance is performed. These are the four stages of deterioration for inspection purposes. They may be used to establish a uniform system of examination for deterioration or damage when preparing the DA Form 2415.

Refer to SB 742-1, applicable technical manuals, and supply bulletins for further guidance on classifying metal, plastic, and rubber component deterioration; mixed ammunition; damaged packaging; and for placing defects into one of the four defect categories.

GUIDED MISSILE AND LARGE ROCKET INSPECTION

GMLR ammunition, components, propellants (liquid and solid), protective clothing, packaging, and packing materials are inspected and tested using applicable supply bulletins, technical manuals, drawings, and specifications.

Most midsized guided missiles are now certified as rounds and are maintained by the contractor at contractor facilities. Unit maintenance on guided missiles is essentially limited to spot-painting and replacement of wings, elevens, and the like. Inspectors must check with surveillance to determine those liquid propellants that should be removed before turn-in.

Missile items identified by lot number or serial number are inspected for serviceability as follows:

- Materiel identified by lot number is sampled and inspected by individual lots. Missiles are inspected using the inspection table in the appropriate technical manual or supply bulletin.
- Materiel identified by serial number is put into homogeneous groups. The grouping does not involve any permanent or physical grouping of the items—just a grouping on paper for inspection. The judgment of a QASAS or MOS 55B ammunition specialist is needed in forming these groups.

Defects found in the sample are classified using the applicable supply bulletin, technical manual, or other specification. Where defects are not classified in these publications, the inspector classifies them according to SB 742-1. The results of the sample inspection are used to make serviceability decisions about the lot or group.

SURVEILLANCE RECORDS AND REPORTS

A technical history of each lot, serial number, or group of Class V items is kept by surveillance personnel. This history includes a record of the results of all inspections, tests, investigations, and any unusual or changing conditions affecting the items. These records are used to evaluate the serviceability and reliability of ammunition items. Therefore, it is important that all information gathered from these inspections, tests, and investigations be accurate and concise. The type of information needed for recording and reporting purposes may vary depending upon the organizations supported by surveillance. The information needed to satisfy local and higher headquarters supply actions is determined by local procedures. The information needed for maintenance purposes is usually more detailed as to the extent of the defect and the work required to return the item to service. The following information is needed to evaluate the reliability of the stockpile:

- Condition of the materiel.
- Quantity.
- Data of manufacture.
- Type of storage.
- Type of defects.
- Cause of defects.
- Results of tests.

Surveillance personnel are also required to submit other types of reports on materiel received or in storage and to maintain certain records. The surveillance records and reports below are listed for the COOP. If for some reason these records are not available or are not used during WCTO, a facsimile-formatted document should be on file for use. SB 742-1 provides guidance for preparing these records and reports.

- DD Form 250 *(Material Inspection and Receiving Report).*
- DD Form 1575 *(Suspended Tag-Materiel).*
- DD Form 1575-1 *(Suspended Label-Materiel).*
- DD Form 1650 *(Ammunition Data Card).*
- DA Form 984 *(Munition Surveillance Report—Descriptive Data of Ammunition Represented by Sample).*
- DA Form 2415 *(Ammunition Condition Report).*
- DA Form 3023 *(Gage Record).*
- DA Form 3022-R *(Army Depot Surveillance Record [LRA]).*
- DA Form 4508 *(Ammunition Transfer Record).*

- SF 361 *(Transportation Discrepancy Report),*
- SF 364 *(Report of Discrepancy [ROD]).*
- Ammunition inspection and lot number reports.
- Ammunition suspension records, to include AMCCOM and MICOM suspension.
- Equipment logbooks and maintenance logs.
- Reports of explosions, chemical agent releases, serious accidents, and nuclear incidents.
- Small arms tracer reports.
- Storage monitoring records (local format).

DESTRUCTION PLAN

The destruction of ammunition during WCTO is based on the METT-T. However, a general plan for the destruction of unserviceable ammunition and CEA must be prepared for every storage activity. This plan includes priorities of materiel to be destroyed, methods of destruction, location of primary and alternate disposal sites, protective clothing requirements, and decontamination requirements, It should also list required equipment and explosive materials, with instructions for their placement and use.

A destruction site should be carefully selected so that explosive fragments, debris, and toxic vapors do not become a hazard to personnel, materiel, facilities, or operations. For further information on selecting a destruction site, refer to TM 9-1300-206, FM 5-250, and FM 9-13.

Ammunition personnel normally perform the routine destruction of ammunition determined to be unserviceable as a result of damage or deterioration. Badly damaged or deteriorated ammunition that constitutes an explosive hazard is disposed of by EOD personnel. EOD personnel may also be required to dispose of other ammunition when its destruction is beyond the capability of the storage activity. Dud ammunition is destroyed by EOD personnel only.

For information on the emergency destruction of storage sites, refer to FM 9-13 and the field SOP.

UNSERVICEABLE AMMUNITION STORAGE

Unserviceable ammunition items are either manufactured with defects or have been made unserviceable by improper storage, handling, packaging, or transportation. Shipments of ammunition received from other supply facilities should be inspected for serviceability. When it is not possible to inspect the ammunition at the time of receipt, unit turn-ins should be stored in a segregated area for later inspection. Ammunition specialists should be familiar with indications of unserviceability and report them.

Unserviceable ammunition must be segregated from serviceable ammunition. Inspectors should segregate unserviceable ammunition for safety reasons and to reduce rehandling. The ammunition must be segregated by DODIC and lot number, followed by serviceability classification. Ammunition that cannot be positively identified by lot number is automatically classified as unserviceable. Exceptions may be made based on the type, quantity, and condition of the ammunition and METT-T. The same safety precautions and principles used for storage of serviceable ammunition are used for storage of unserviceable ammunition. Proper records must be kept on all unserviceable items stored at a supply facility.

Ammunition requiring maintenance should be segregated and marked to prevent issuing. Minor preservation and packaging is performed at field locations—TSAs, CSAs, or ASPs. Extensive maintenance is usually performed at a depot storage facility.

If ammunition requires only packaging and preservation, the unit performs this function, Refer to Appendix D. Time permitting, unserviceable ammunition that is repairable is retrograded for repair. Ammunition abandoned by using units is treated as unserviceable until it is inspected. The procedures that apply to unit turn-ins also apply to abandoned ammunition. Unserviceable ammunition is reported through proper channels for disposition instructions. Hazardous unserviceable ammunition is reported immediately through proper channels to EOD detachments for destruction. A demolition area is designated and cleared for the safe destruction of ammunition.

SUSPENDED AMMUNITION STORAGE

Specific lots of ammunition and components are withdrawn from issue when they are determined to be unsafe or otherwise defective. The problem may be the result of a manufacturing defect, a firing malfunction, or the deterioration of components. Storing ammunition by lot number enables the rapid withdrawal from issue those items that are unsafe, defective, or suspected of being defective.

The authority to suspend any lot of conventional ammunition is vested in the commander, AMCCOM. However, a local suspension may be placed on a suspected lot of ammunition by the installation or area

commander. A preliminary report and later a detailed report are forwarded through the supporting MMC to HQ TA. The ammunition remains in local suspension unless its status is changed by higher headquarters. Instructions for preparing suspension reports are in AR 75-1. Suspended lots of conventional ammunition and components are listed in TB 9-1300-385. Additional notices of suspensions or restrictions are by teletype messages as supplemental changes to TB 9-1300-385.

Ammunition lots that are stored and later placed under suspension need not be moved to a segregated area unless the suspension notice orders it. Stacks of suspended ammunition must be clearly marked on all sides using DD Form 1575 and DA Form 3782, or facsimile-formatted documents (taped to the materiel), to show that the items have been suspended or restricted from issue. When foreign nationals are employed, bilingual tags should be produced locally. Suspended or restricted-issue items returned by the firing units or items received from other supply facilities should be segregated upon receipt. These items should be marked using the forms mentioned earlier and stored in the segregation area. DA Form 3020-R or a facsimile-formatted document (taped to the materiel) should be posted showing the suspension date, the suspension number, and the authority.

CAPTURED ENEMY AMMUNITION STORAGE

AR 381-26 requires that one of three options be taken when ammunition is determined to be in excess for any reason on the battlefield. These options are use, destroy, or secure and retrograde. Except for use, enemy ammunition found is considered excess. As discussed in this section, CEA includes any type of munition.

In addition to the nonlinear AirLand Battle scenario making ammunition demand heavy and critical, commanders have one other factor to contend with: the traditional principle of enemy forces making the most use of all available supply resources. This affects not only US and allied forces' supplies but also any other sources of supply, such as CEA. Because of these factors, CEA becomes a troubling commodity and one that demands special attention.

When an enemy ammunition cache is found, the commander first assesses the combat situation. The commander must then decide whether to destroy the cache, maybe because of enemy threat in the area, or to secure the cache and notify the G2 and EOD support in the area closest to the cache. If the G2 is notified, the commander provides grid coordinates or location, the estimated size and quantity of items in the cache, and an initial estimate of the kind(s) of ammunition in the cache.

If the G2 and EOD are both informed, they analyze and identify the cache to ensure that it is safe to transport or retrograde to a storage area in the rear. Civilian or military ammunition inspectors also inspect the cache for condition, type, and caliber. These inspectors should note any special characteristics that may be of interest to technical intelligence personnel. Noted items must be reported quickly through intelligence channels. Hazardous enemy ammunition should be segregated and disposed of.

If the cache is retrograded, ammunition managers in the corps are notified to provide QA/QC personnel and corps transportation assets to support the retrograde operation. These personnel go to the cache to load and transport it to the designated SSA. QA/QC personnel assist in segregating and loading the ammunition, The designated SSA places the cache into a designated secure area. CEA, whether thought to be serviceable or unserviceable, must not be stored with US ammunition.

CEA that has been certified or cleared by EOD, QASAS, or military inspector must be receipt inspected and accounted for the same way as US ammunition. This inspection must be done as soon as possible after receipt. Once CEA is identified as accurately as possible, it is put into the SAAS system for accounting and control. Reporting and disposition instructions for CEA are the same as for friendly Class V items. Close control of CEA is necessary, because it could be recaptured and be in enemy hands once again.

Positively identified CEA might be useable in compatible US or allied forces weapons systems. If so, this eases the burden on the ammunition supply system. CEA can also be used as a substitute for bulk explosives during demolition operations.

SALVAGE AND PACKAGING MATERIALS STORAGE

Salvage material includes such items as boxes, crates, and steel containers. Packaging material includes nose plugs, grommets, metal links, clips, cartridge cases, and brass.

Based on the METT-T, salvage material is normally collected at ASPs and shipped to designated points within the theater of operations for reuse or retrograde, However, if salvage material is turned in at the ATP, the ATP NCO in charge arranges to have it hauled to an ASP via available transportation. Some salvage material may be used at field facilities to repack serviceable ammunition and components. Salvage material is inspected to ensure that it is free of explosives. Salvage material is recorded on stock records and reported as directed by higher headquarters. Disposition and shipping instructions are furnished by the MMC. The storage facility receives disposition instructions on the basis of these reports.

When inert salvage material is shipped from any ammunition facility, the shipment must be certified to be free of explosives by the senior inspector. Empty chemical containers, boxes, and packaging material must be certified to be free of chemicals or chemical residue.

CHEMICAL MUNITIONS STORAGE

When unassembled BCMs are deployed to a theater of operations, their primary storage location is directed by the theater commander. In wartime, effective measures must be implemented to maintain strict control and safe handling of these BCMs. When deployed, the nonlethal-component canisters are stored separately until a release order is given. Separate storage of BCM components is imperative not only for the safety of personnel and facilities but also to prevent the possibility of a lethal accident or incident that the enemy could consider as first use. The enemy might, in turn, retaliate with chemical munitions.

BCMs must not be assembled until a properly authenticated release order has been given by higher headquarters. From the CSA, the BCMs are normally shipped forward unassembled to the ASPS. Once assembled at the ASP, they are uploaded for issue at the ASP or transported to the ATP for issue, depending on the tactical situation. The tactical situation may dictate that the munition be assembled at the CSA and shipped directly to the ATP. Also, unassembled BCMs may be issued directly to the firing unit under emergency conditions. Ideally, assembly of BCMs should occur as far forward as possible to minimize handling and exposure to possible leaks and contamination. Procedures for the storage, handling, and security of BCMs follow. Additional guidance on chemical hazards and safety is contained in Appendix E.

In the event unitary munitions are handled (such as CEA), the conventional ammunition unit takes all necessary NBC precautions, especially if there has been an accident. These precautions include dressing in mission-oriented protective posture-4 (MOPP-4) gear and requesting EOD chemical unit help from corps headquarters. Refer to TC 9-20 for further guidance,

The same storage considerations for BCMs apply for both CSA and ASP operations. Commanders of conventional ammunition companies must be prepared to assume custody of unassembled BCMs. The CSA normally receives unassembled BCMs directly from the port. The ASP normally receives unassembled BCMs from the CSA. The commander must ensure that the nonlethal-component canisters are stored in separate storage structures within the same storage area or in separate locations at different storage areas. Storage of BCMs must be according to the quantity-distance requirements in DOD 5154.4-S and TM 9-1300-206. During convoy operations from the port to the CSA and from the CSA to the ASP, the components are shipped on separate vehicles within the same convoy.

Upon authorized release and in most cases, using units pick up their allocated BCMs from their supporting facility at the same time they resupply their conventional ammunition needs. If the tactical situation changes and uploaded or issued BCMs are no longer required, BCMs must be returned to the supporting facility and disassembled by ammunition specialists. The disassembled component parts must be placed in their original packages and returned to a secure storage location. Instructions must be requested from higher headquarters if there is any uncertainty as to the disposition of BCMs.

The fewest number of personnel necessary must be used to handle BCMs. Commanders must ensure that they establish unit SOPs that provide special handling procedures for BCMs. These procedures must emphasize safety and, as a minimum, must include the following:

- Required MOPP gear that must be worn.
- Required chemical detector kits and alarms.
- Emergency procedures and assistance for accidents and incidents.
- Monitoring and surveillance requirements.
- Inspection requirements for BCMs and related chemical operations.

- Disassembly procedures for assembled BCMs.
- Specific area for assembly and disassembly operations.

Generally, physical security principles that apply during peacetime also apply during wartime, Under emergency situations or intense combat conditions, however, some peacetime requirements may have to be waived. Regardless of the degree of combat, commanders must ensure that qualified personnel provide physical security whenever and wherever chemical munitions are handled. From the time BCMs enter the theater area, commanders are responsible for their security during handling, moving, and storing operations. Security personnel may include a combination of escort personnel, MPs, conventional ammunition personnel, and designated personnel from the combat user. Security personnel have the primary mission of preventing unauthorized or uncontrolled access to chemical munitions. Unit commanders must develop a detailed unit SOP that deals with the security of these munitions while they are in custody. As a minimum, these procedures should include the following:

- Personnel qualifications for those guarding and having access to chemical munitions.
- Identification of authorized personnel.
- Security during transport of munitions. Details for security planning for chemical munitions are given in AR 50-6, AR 190-11, AR 190-14, AR 190-59, AR 380-67, and FM 19-30.

REWAREHOUSING

Rewarehousing is the art of using available space efficiently to support receipt, storage, and issue of Class V items with a minimum amount of handling. One of the most important elements of rewarehousing is space layout planning. Consolidation is the key to good rewarehousing, location control, and conservation of storage space.

NIGHT OPERATIONS

During combat operations, ammunition units must be able to perform operations at night. With the added disadvantage of darkness, safety must be paramount in the completion of all issues, turn-ins, receipts, retrograde operations, and shipments. Some of the factors and considerations that affect night operations include the following:

- Soldiers will work slower due to darkness. Thus, when planning night operations, allow additional time to complete the operation.
- A larger work force is necessary for each operation than would normally be required during daylight.
- Accountability emphasis increases. Ensure that soldiers serving as checkers are familiar with the area layout and the locations of the stocks.
- Safety must be stressed to all individuals involved, especially MHE operators. Ensure that additional ground guides are used for all operations.
- Based on the tactical situation, commanders must decide to what degree light discipline must be maintained. If feasible, hand-held flashlights or MHE headlights might be used to offset the disadvantage of darkness. In such cases, ensure that proper batteries and blackout filters are available.
- Night-vision goggles must be used as much as possible. Ensure that proper maintenance is performed to keep them operational.

SLING-OUT OPERATIONS

The use of aerial resupply continues to be an essential element of the ammunition distribution system for both emergency resupply and routine resupply of high-value Class V materiel. The ideal sling-out area should have as stable a surface as possible, based on METT-T. The surface must be able to support the weight of stocks and MHE. Consideration must also be given to the prevailing winds. The area should be downwind from inhabited buildings or working areas in case there is an accident involving chemical rounds. High-tension lines and other obstacles should not cross the chosen area or interfere with aircraft during sling-out operations. Appropriate fire-fighting and electrical grounding equipment must be maintained at all times. Provisions must be made for adequate security. The sling-out area should not be used for overnight storage of ammunition (that is, stockpiling for anticipated shipments). Only ammunition that is to be placed in cargo nets on-site should be located in the area. Cargo nets should be loaded and placed so that the aircraft can pick them up while hovering. All incoming shipments must be cleared from the area

immediately. MHE must be kept out of the area while aircraft are hovering, landing, or taking off.

Helicopter loading sites (ammunition sling-out areas) at Class V storage facilities are run by that facility, with technical assistance from the Army transportation service. Refer to FM 55-450-3, FM 55-450-4, FM 55-450-5, and TM 38-250 for additional information on sling-out operations.

C H A P T E R 6

W A R / C O N T I N G E N C Y T A C T I C A L A M M U N I T I O N S U P P L Y O P E R A T I O N S

This chapter describes WCTO ammunition supply operations. These operations include receipts, turn-ins, issues, retrogrades, shipments, and field storage. For ammunition supply operations in an NBC environment, see Appendix C. Procedures covering ATP operations are in ST 9-38-1.

RECEIPTS

Receipt refers to a shipment of ammunition received from an ASP, a CSA, or a TSA, or directly from a port or a manufacturing plant. Receipts should not be confused with unit turn-ins. Ammunition receipt operations include completion of administrative details, inspection of vehicles, and the unloading of ammunition at the designated storage location. Stocks received by an ammunition supply unit are recorded on stock records, reported to the appropriate MMC, and stored for subsequent shipment or issue.

PLANNING

An ammunition supply unit normally receives advance notice of an incoming shipment in one of several ways. This notice may be a DD Form 1348 or a DD Form 1348-1, a message, or a document identifier code (DIC) XBT-IIN card from the supporting SAAS MMC. When an advance notice document (in whichever format) is received, the ammunition supply unit should select storage locations and make plans to unload and store the ammunition. During the planning stage, storage compatibility, quantity-distance requirements, CCLs, and programmed shipments should be considered. It may be necessary to consolidate some stocks already in storage before the shipment arrives so that incoming vehicles can be offloaded directly at the planned storage location. Planning also includes assigning enough people and equipment to complete the operation safely and efficiently. Refer to AR 385-64 and TM 9-1300-206 for additional guidance.

Receipts at TSAs are normally in large quantities, all coming from the POD. In many cases, due to the limited time available for unloading ships, TSA receipts may not have lot integrity. This is also true of CSA receipts, since 50 percent of them are from the POD. If practical, representatives of the ammunition facilities should be at the port terminal to supervise unloading. This procedure will help ensure that lot integrity is maintained and reduce the lot segregation workload at the ammunition facility. When ammunition is received from another ammunition facility that is staffed by trained ammunition personnel, the difficulties encountered with mixed lots are negligible. This is especially true if proper liaison has been established with the shipper, Every effort should be made to reduce the number of mixed lots that arrive. Sorting and segregating lots reduce the handling capability of the unit.

When the shipment convoy arrives at the field storage location (TSA, CSA, or ASP), the convoy

commander or supervisor provides the control section a copy of the shipping/receipt documentation. Vehicles are placed in the vehicle holding area to await vehicle inspection before they enter the ammunition storage area.

TRANSPORT INSPECTION

QASASs, military ammunition inspectors, or other qualified personnel inspect incoming loaded transports. Since ammunition is especially sensitive to fires, the transports (tractors, trailers, railcars) and their cargos must be inspected for those safety and fire hazards that could start or contribute to a transport or a grass fire. The transports should also be inspected for evidence of tampering or sabotage. Railcars and motor vehicles must be inspected before they can be allowed into the storage area for unloading. Peacetime inspection criteria are stringent. During WCTO, the criteria must be relaxed enough to speed the flow of ammunition but not enough to cause unwarranted safety hazards. Deficiencies should be brought to the attention of the driver or convoy commander. If deficiencies cannot be corrected, coordination must be made with the using unit to ensure that serviceable transports are provided. The following listing is an example of the minimum that should be inspected:

- Check cargo area for excessive debris and POL products.
- Check steering for safe operation.
- Check windshield and wipers for adequate combat operation. For example, a cracked windshield is okay in combat.
- Check for serviceable fire extinguishers. This will not be a failure in WCTO.
- Check brakes and lights (especially for night operations) for proper operation.
- Check exhaust system for dangerous leaks. Leaks are not acceptable if they cause carbon monoxide fumes in the cab.
- Check fuel tanks and lines for leaks. Small leaks are okay in WCTO.
- Check trailer coupling device for serviceability.
- Check tires for any dangerous condition.
- Check electrical wiring for such dangers as bare wires, wires crossing hot engine parts, and so on.
- Ensure that ammunition is securely blocked and braced or secured with cargo straps.

Transport inspections are conducted to ensure the safe shipment of ammunition and to prevent its loss as an asset. Use common sense during WCTO inspections. The emphasis should be on ensuring that the transport can accomplish its mission based on the METT-T. Additional guidance may be found in TM 9-1300-206.

STORAGE

A DA Form 3151-R or a facsimile-formatted document is filled out for each vehicle carrying ammunition into the storage area. As a minimum, the document indicates the field storage location by section or storage area, document number, condition code, Federal supply classification (FSC), DODIC, lot number, and quantity.

After inspection, incoming motor vehicles are escorted by checkers assigned from the supply platoon. A checker is assigned to each vehicle or group of vehicles to guide them to the correct storage location. The checker verifies receipt of the shipment and supervises off-loading. The checker verifies the DODIC, national stock number (NSN), lot number/serial number, and quantity of ammunition received for each document number. The checker records the exact amount of ammunition received and all discrepancies found during the inspection on the DA Form 3151-R or facsimile-formatted document. If the storage location was not initially indicated on the DA Form 3151-R or facsimile-formatted document, the checker enters it when the ammunition is unloaded. The checker fills out a DA Form 3020-R or a facsimile-formatted document for each lot placed in storage.

After each motor vehicle is off-loaded, it is driven to the vehicle assembly area and returned to the control of the convoy commander. The checker returns the DA Form 3151-R or facsimile-formatted document to the control section. There it is checked for accuracy. The total quantity of each item as shown on the DA Form 3151-R or facsimile-formatted document for the shipment will be checked against the total quantity shown on the shipping/receipt document. The shipping/receipt document is then signed by the accountable officer, and the ammunition receipt is posted to the accountable stock records. A signed copy of the shipping/receipt document is given to the convoy commander or supervisor. All transaction documents are then filed. However, if there is a discrepancy between the two transaction documents (DA Form 3151-R or facsimile-formatted document and the shipping/receipt document), a recount is made. The actual quantity verified as received by the

control section is entered on the shipping/receipt document. The shipping/receipt document is then signed by the accountable officer, and the ammunition receipt is posted to the stock control accountable records. A signed copy of the shipping/receipt document is given to the convoy commander or supervisor. Receipt documentation is filed and used as backup documentation for posting accountable records. A report of discrepancy is prepared, if required, and sent to the shipper. The report outlines the discrepancy by lot number, NSN, quantity, and so on.

An XBT transaction with the appropriate code is submitted to the supporting SAAS MMC to close out the intransit document.

In the larger ammunition storage facilities (TSAs and CSAs) where section offices are used, some modification of these procedures may be required. However, any modifications should be based on maintaining flexibility, simplicity, and adequate control of the receiving operation.

TURN-INS

During WCTO, turn-ins at the ASPs will probably be in small quantities. However, they must be accounted for. Turn-ins may include many unserviceable items as well as unused ammunition and CEA. These items must be thoroughly inspected and the quantity and condition reported to the control section. For safety reasons, using units should be encouraged to make every effort to return ammunition in its original packaging. Each ASP will develop and provide to all its customers an SOP that outlines ASP operations and the procedures to follow when receiving and returning ammunition and residue. Refer to AR 710-2 for additional information.

ASPs may also be required to accept salvage material turned in by using units. This salvage material must be thoroughly inspected to ensure that the items are nonexplosive. Salvage material is stored in the inert salvage area. The material is inventoried, recorded, and reported (when required) to the appropriate MMC for disposition instructions, depending on METT-T. The accountable officer should ensure that appropriate documents are maintained, depending on METT-T.

ISSUES

An issue is the transfer of ammunition stocks from an ammunition storage facility to an authorized user, but not to another storage facility. During WCTO, Class V issues may not follow strict doctrinal guidelines. Responsible activity managers must support requirements using their best judgment on how to handle the situation at hand. Some factors to be considered in the judgment process are the established CSR, user identification, quantities required, and type of ammunition.

The supply point distribution method is used by DS and GS units to issue ammunition to using units. This method is based on the objective of MOADS, which is to provide as close as possible to 100 percent of the using unit's Class V requirements through the ATPs. Issue procedures described below are based on the operations of ASPs. In an active theater of operations, ASPs have mission responsibility for issuing ammunition to using units. CSAs and TSAs make limited issues to local customers in their area.

Issues are based on identified requirements. Normal Class V requirements are processed from the using unit's supporting battalion S4 up to the DAO, the brigade ammunition officer (BAO), and/or the regiment ammunition officer (RAO). The DAO, the BAO, and/or the RAO then consolidate and submit their requirements to the supporting COSCOM MMC. The MMC supports these requirements by sending a materiel release order (MRO) to the appropriate ammunition storage or supply activity. The CSA and/or ASP then ships the Class V items to the ATP grid coordinates provided. Corps and EAC units submit their requirements through their supporting battalion S4 to the supporting SAAS MMC.

AUTHENTICATION

In a division, separate brigade, or regiment, the DAO, BAO, or RAO or designated representative authenticates the DA Form 581 or facsimile-formatted document , if available. (The request could be by mobile subscriber equipment [MSE].) In a corps artillery, the artillery group supply officer (S4) may be designated to authenticate the request. Authentication gives tactical commanders control of ammunition issues. With the proper controls, ammunition managers at the DAO, CMMC or TAACOM MMC, and TAMMC can comply with sudden changes in priorities and allocations of ammunition assets.

Requesting units other than those discussed in the preceding paragraph may have their DA Form 581 or facsimile-formatted document authenticated by a command-designated officer before arrival at the ASP, CSA, or TSA. Again, the unit may show up at

the ASP or ATP with a facsimile-formatted request or with a verbal requirement. If so, the ASP stock control officer and/or the ATP DAO representative will have to use judgment to support the requirement. Both activities, the requesting unit and the issuing unit, should verify the issue. The ASP and the ATP should each have a listing of units that they support. This list is furnished by the supporting SAAS MMC and/or by the DAO, the BAO, or the RAO. Only soldiers who have an identification card or are identifiable by some unit verification process are allowed to receive ammunition.

DOCUMENTATION

Ammunition convoys arriving at the issuing ASP are directed to the vehicle holding area. The ammunition request that the convoy commander or supervisor has may be in any one of the forms mentioned earlier. Whatever the case, the issue must be verified. The stock records clerk reviews the request documents for completeness and accuracy and for proper authentication. The request document should be signed by the appropriate command and control Class V manager. Any discrepancies should be corrected after discussion with the convoy commander or supervisor. Finally, the request document is checked against stock control records to determine from which storage location the issue will be made.

STOCK SELECTION

Only serviceable ammunition is issued. Serviceable ammunition could include restricted ammunition and ammunition suspended from issue and use except for emergency combat as defined and limited by TB 9-1300-385. Units receiving serviceable restricted ammunition in these two categories must be advised of the limitations in writing by the inspector or other qualified individual. Under no circumstances will ammunition that is suspended from issue, movement, and use be issued. Issues of miscellaneous small lots of artillery ammunition to the same requester should be avoided when possible. This is important to artillery units, because changes in lot numbers increase registration time and cause excessive expenditure of ammunition for fire missions. This rule is especially important in combat.

A DA Form 3151-R or facsimile-formatted document is filled out in triplicate by the stock records clerk for each vehicle in the convoy. This form shows the DODIC, the NSN, the lot number, the number of rounds and containers, and the storage location from which the items are to be issued. After the DA Form 3151-R or facsimile-formatted document has been reviewed and authenticated by the stock control officer, the operations sergeant, or other designated representative, the request-for-issue document and one copy of each DA Form 3151-R or facsimile-formatted document are attached together and placed in a temporary suspense file. The QA/QC section verifies the condition and status of the ammunition being issued and approves the selected items by identifying any restrictions on the DA Form 3151-R or facsimile-formatted document.

The operations sergeant briefs the convoy commander or supervisor and individual drivers on any necessary instructions and information and arranges with the supply platoon for the required labor. The ammunition supply platoon arranges for MHE support from the rough-terrain forklift section.

The original and one copy of each approved DA Form 3151-R or facsimile-formatted document is given to an ammunition checker. The checker guides the vehicles to the individual storage locations. One or more people from each section of the ammunition supply platoon should be detailed to perform checker duties.

TRANSPORT INSPECTION

QASASs, military ammunition inspectors, or other qualified personnel will inspect vehicles as discussed under the Receipts section of this chapter.

VEHICLE LOADING

At the storage area, ammunition vehicles are loaded with the items indicated on the DA Form 3151-R or facsimile-formatted document, If for any reason the ammunition lot number is not available, the checker contacts the control section and QA/QC to receive clearance prior to issuing the lot number that is available at that FSU. If a substitute lot is issued, the checker corrects and verifies both the checker's and driver's copies of the DA Form 3151-R or facsimile-formatted document. The convoy commander or supervisor and/or each individual truck driver signs the receiving block of the checker's copy of the DA Form 3151-R or facsimile-formatted document. The vehicles proceed to the vehicle assembly area. Ammunition checkers turn in their completed forms to the control section.

VERIFICATION

The suspense copies of the DA Form 3151-R or facsimile-formatted document and DA Form 581 or facsimile-formatted document are pulled and verified against the original copies completed by the checkers, Corrections are made as necessary and total quantities issued are entered on the DA Form 581 or facsimile-formatted document. The convoy commander, the supervisor, or the driver signs the DA Form 581 or facsimile-formatted document and is given a copy of the form. The DA Form 3151-R or facsimile-formatted document is then used to post the lot locator cards. As each card is posted, a note is made on the DA Form 581 or facsimile-formatted document stating that the lot locator card has been posted.

SHIPMENTS

A shipment is the movement and transfer of ammunition stocks from one storage facility to another or to ATPs. Corps transportation assets not organic to the shipping ammunition unit are used. Issues are not considered shipments.

In routine operations, CSAs and TSAs ship ammunition directed by MRO to ASPs and ATPs. These shipments are made up from operating stocks arriving in the theater or those stored in the TSAs. If the theater Class V stockage level exceeds theater demand, and when approved through higher command channels, shipments may be made over and above the established CSR constraints. Shipments out of the theater to support other contingencies may also be made through a Class V manager's command and control approval process. As stocks build up, the MMC directs shipments of selected stocks forward.

In most situations, shipments in the combat zone are limited to highway transport. Rail and water facilities may be used when available. Aircraft are used only when absolutely necessary. Ammunition shipments are palletized in breakbulk or CCLs to make handling easier, They are consolidated for throughput distribution directly to forward ASPs and ATPs.

Ammunition shipped between ASPs within the combat zone is normally in smaller quantities than that shipped to ASPs from COMMZ storage facilities. Usually, these ASP to ASP shipments are made on short notice, so less time is available for planning. These shipments are frequently by single-vehicle transport rather than by convoy.

PLANNING

Upon the receipt of an MRO, shipping instructions, or other shipment authority, the supply facility must plan the mechanics of the specific shipment. The efficiency of any shipping operation is based largely on the thoroughness of advance planning. Plans will vary depending upon the tactical situation, the operational environment (METT-T), the type of shipment, and the existing workload. The following factors are to be considered when planning a shipment:

- Verify the availability of the ammunition for shipment. Items not available should be reported immediately to the activity issuing the shipping directive.
- Select the lots and storage locations from which specific quantities will be loaded. Shipments must be planned to provide enough loading points to make the most effective use of loading crews and MHE and to avoid delays for transport vehicles.
- Make sure surveillance personnel verify the condition code and any restrictions or suspension of the ammunition planned for shipment.
- Determine the total gross weight and cube of the ammunition. This information is critical to transportation personnel for planning the most efficient use of transportation assets.
- Determine the compatibility of ammunition items during transport. Details on ammunition compatibility during shipment are in AR 385-64, FM 9-13, and TM 9-1300-206.
- Coordinate pending shipments with the supporting transportation office as far in advance as possible.
- Compute the numbers and kinds of ammunition specialists and supervisors needed. These computations are based on the amount and type of ammunition to be shipped, mode of transportation to be used, and time available to load the shipment.
- Compute the numbers and types of MHE needed based on the unit pack, the size and weight of items to be shipped, and the type and size of the vehicles to be used. The greatest use should be made of available MHE.
- Compute the numbers and types of safety equipment, tools, materials, and supplies needed to brace, palletize, transport, and secure items during loading and transport.

- Estimate the downtime involved in loading, transporting, bracing, inspecting, documenting, and releasing carriers to the transportation service. Downtime is the time interval between the arrival of an empty carrier at a Class V storage facility and its loaded departure. It begins when the carrier arrives at the supply facility office and terminates when the carrier clears the vehicle assembly area checkpoint.
- Determine the number of pallets, CCLs, or boxes of each item to be loaded on each carrier before the transportation vehicle arrives. This reduces downtime for loading. It also improves the degree of control over personnel, MHE, and documentation. Each type of package and carrier should have a separate loading plan.

LIAISON WITH LOCAL TRANSPORTATION AGENCIES

The responsible MCC designates an MCT to be the single point of contact for each shipping or receiving activity. The MCT is the link between the shipping activity and the transportation service organization. The MCT receives transportation service requirements from the MCC and processes the requests. The MCT coordinates the activities of transportation operators and expedites movements of incoming and outgoing carriers.

Ammunition units must establish close liaison with the MCT serving their area to ensure efficient transportation and ammunition service support. Timely and accurate data must be provided to the MCT on impending shipments. This way, the MCT can provide advance information on the mode of transportation, the time of arrival, and the positioning (spotting) of carriers.

The MCT notifies the receiving activity by message data traffic or telephone, if possible, of the departure time, the type of transportation used, the number of transportation units, the estimated time of arrival, and any other pertinent information that the receiving activity may need to know in order to plan for the receipt.

A transportation SOP from supporting transportation agencies, based on the policies and directives of higher headquarters, should be available to all concerned.

SHIPPING REGULATIONS

Shipments of ammunition within a theater of operations should comply with theater and Department of the Army (DA) directives, safety regulations, and host-nation requirements (METT-T dependent). Theater directives and safety regulations in a theater of operations follow the same practices and procedures as those in CONUS. The regulations that apply to shipments of ammunition are AR 55-355 and DOD 4500.32-R.

Instructions for using, preparing, and disposing of required transportation documentation are in AR 55-38, AR 710-2, AR 735-5, AR 735-11-2, and DOD 4500.32-R, Detailed instructions and procedures controlling the shipment and transportation of ammunition are in TM 9-1300-206. The regulatory forms prescribed in the above regulations may not be available for use, or the WCTO situation may be so critical, that judgment must be used to complete the mission.

TRANSPORT INSPECTION

QASASs, military ammunition inspectors, or other qualified personnel will inspect vehicles as discussed earlier in the Receipts section of this chapter.

TRAILER TRANSFER POINTS

A trailer transfer point (TTP) is a point between the origin of supplies and the destination where supplies are off-loaded from one means of transport to another. Examples are the transfer of Class V supplies from railcar to cargo truck or from cargo truck to aircraft. Normally, TTPs are the responsibility of the transportation service. However, when transferring Class V items, the transportation service may require technical advice and assistance from ammunition surveillance and/or other qualified personnel at supported ammunition units. TTPs should not be confused with ATPs. ATPs are in the forward areas and are operated by FSBs and DS ammunition companies.

TYPES OF SHIPMENTS

Rail Shipments

US or HNS railhead operations are sometimes a part of ammunition supply operations. A railhead is a

transfer point where ammunition is transferred from truck to railcar, or vice versa. Specific procedures for rail shipments regarding safety precautions, loading, blocking and bracing, certifying cars, positioning (spotting) of loaded cars, and inspections are found in TM9-1300-206, AR385-64, and, if available, ammunition loading drawings. Inspection standards during WCTO will be set by inspectors, based on METT-T and criticality of the mission.

Waterborne Vessel Shipments

The loading and unloading of waterborne vessels is the responsibility of transportation units in the theater of operations and the US Army Military Traffic Management Command. Ammunition supply units may be asked to provide technical assistance concerning waterborne vessel shipments. Details on waterborne vessel shipments are in AR 385-64 and BOE Tariff No. 6000. US Coast Guard regulations also govern the classification, compatibility, and stowage of ammunition aboard all waterborne vessels. The Coast Guard is usually responsible for the security and supervision of waterborne vessels, including barges.

Motor Vehicle Shipments

Motor vehicle procedures are used for shipping operations in all ammunition supply facilities. DD Form 1384 and DD Form 1348-1 (or facsimile-formatted documents), if required by the TAACOM or COSCOM commander, are used to request transportation for a shipment. During WCTO, there may be no shipping documents. Coordination or requirements may be by computer, telephone, or radio links. For specific motor vehicle shipment regulations, precautions and safe handling, inspection criteria, and technical escort, refer to TM 9-1300-206. Specific responsibilities of the shipper and the carrier are found in AR 55-355 and OCONUS transportation regulations.

Air Shipments

Air shipments of ammunition may be made at US Air Force airfields, at US Army airfields, at heliports, and at ammunition sling-out areas. Air terminal operations at Air Force airfields are controlled by the Air Force. TTPs operated by the field Army are controlled by the Army transportation service, with technical assistance from supporting ammunition supply units.

The airfield should have a staging area where documentation may be prepared and where bulk shipments can be received and prepared for shipment. Air shipments are preplanned by weight, cube, and compatibility for each aircraft. Wherever possible, motor vehicles are loaded and moved to the airfield so as to arrive at the same time that the aircraft is available for loading. Normally, vehicles are escorted to the aircraft by an Army or Air Force guide. It is the responsibility of the aircraft commander, load master, or crew chief to supervise the stacking and lashing of the cargo.

For helicopters, loaded cargo nets must be placed in the landing area so helicopters can hover to pick them up. Cargo nets may be loaded at the ammunition supply facility and transported to the airfield, or the cargo nets may be loaded at the airfield. More information on sling-out operations is in Chapter 5.

Each pallet of ammunition to be shipped by military or commercial aircraft must have a DD Form 1387-2 or facsimile-formatted document attached to it certifying that the shipment complies with the provisions of TM 38-250 or CFR Title 49. The form must be signed by a qualified individual who has successfully completed the Special Handling Data/Certification Course. The original copy of DD Form 1387-2 or facsimile-formatted document must be attached to the Number 1 pallet of the shipment. Distribution of the three additional signed copies are as follows: one copy enclosed in a waterproof bag and attached to the Number 1 pallet, one copy given to the air terminal records section, and the final copy attached to the air cargo manifest. If subsequent pallets in the shipment are the same type of item and are shipped under the same transportation control number, each additional pallet must have a completed but unsigned DD Form 1387-2 or facsimile-formatted document affixed to it.

For specific requirements and standards for air shipments regarding aircraft specifications, operating regulations, loading and unloading procedures, and special handling certification, refer to TM 9-1300-206 and TM 38-250.

SHIPPING DOCUMENTATION

DD Form 1384 is the prime transportation information document prepared for each shipment. This form, the Transportation Control and Movement Document (TCMD), is prepared by the supply activity making the shipment, and carries that transportation data throughout the movement cycle. It is a basis for advance planning, which speeds movement of cargo at terminals and other transshipment

and transfer points. It also provides essential information necessary to trace, locate, and divert shipments. However, during a WCTO, a facsimile-formatted document prepared by computer, manually, or in message format may be used instead of the DD Form 1384,

The supply activity should furnish the local MCT a copy of the TCMD. Guidelines for preparing and using the TCMD are in DOD 4500.32-R. Additional guidance may be obtained from the local MCT and current directives within the command.

SF 364 (Report of Discrepancy [ROD]) or a facsimile-formatted document is prepared for shipping type or packaging discrepancies during WCTO. Procedures for preparing this form are in AR 735-11-2.

During WCTO, and based on METT-T, SF 361 or a facsimile-formatted document is prepared to report damaged or improper shipments due to transportation discrepancies. When the shipment is seriously damaged or there are unusual circumstances, the form should be supplemented with photographs. Procedures for preparing this form are in AR 55-38.

APPENDIX A

PALLETIZED LOAD SYSTEM

Appendix A has been extracted from TRADOC Pamphlet 525-65. It provides the interim operational concept for Class V support utilizing the PLS.

*TRADOC Pam 525-65

Department of the Army
Headquarters, United States Army
Training and Doctrine Command
Fort Monroe, Virginia 23651-5000

24 August 1992

Military Operations

U.S. ARMY OPERATIONS CONCEPT FOR CLASS V SUPPORT USING THE PALLETIZED LOAD SYSTEM (PLS) SHORT TITLE: MANEUVER ORIENTED AMMUNITION DISTRIBUTION SYSTEM (MOADS-PLS)

Summary. This pamphlet addresses the ammunition distribution system at corps and below. Use of the PLS allows the transfer of loads to and from the vehicle without the need for materials handling equipment (MHE), thus saving resources and time. Combining MOADS with PLS allows ammunition to be delivered forward of the corps storage area (CSA) more quickly.

Applicability. This pamphlet applies to Headquarters TRADOC staff elements, major subordinate commands, TRADOC installations, and TRADOC centers and school.

Suggested improvements. The proponent of this pamphlet is the Deputy Chief of Staff for Combat Developments (DCSCD). Send comments and suggested improvements on DA Form 2028 through channels to Commander, HQ TRADOC, ATTN: ATCD-P, Fort Monroe, Virginia 23651-5000.

Distribution restriction. Distribution authorized to government agencies only because this publication contains technical or operational information for official government use only. This determination was made on 7 March 1990. Other requests for this document will be referred to Commandant, USAOMMCS, ATTN: ATSK-A, Redstone Arsenal, AL 35897-6000.

Contents

	Paragraph	Page
Chapter 1 Introduction		
Purpose	1-1	1
References	1-2	1
Explanation of Abbreviations and Terms	1-3	2
Overview	1-4	2
Limitations	1-5	2
Chapter 2 Concept		
Continuous Refill System Distribution	2-1	2
Shipment and Storage	2-2	2
Effects of Palletized Load System on Current Ammunition Distribution System	2-3	4
Appendix A Doctrine		5
Appendix B Training		5
Appendix C Leader Development		5
Appendix D Organization		5
Appendix E Materiel		6
Glossary		6

Chapter 1 Introduction

1-1. Purpose. This pamphlet provides the Army with a Class V support concept that is responsive to the combat user's needs. This pamphlet describes the concept of using the Palletized Load System (PLS) to support the Airland Battlefield (ALB). The concept provides a logical transition to the logistical support concepts currently envisioned for the Army of the future. The Maneuver-Oriented Ammunition Distribution System (MOADS) using PLS, will provide faster response times, combat-configured loads (CCLs) for high consumption ammunition, and 100 percent of the user's total ammunition requirement through the ammunition transfer points (ATPs).

1-2. References.
Related publications are listed below.

a. AR 710-1 (Centralized Inventory Management of the Army Supply System)

b. FM 9-6 (Munitions Support in the Theater of Operations)

c. FM 9-38 (Conventional Ammunition Unit Operations)

d. FM 55-10 (Movement Control in a Theater of Operations)

e. FM 63-3 (Combat Service Support Operations Corps)

f. FM 100-10 (Combat Service Support)

g. FM 100-16 (Support Operations: Echelons Above

*This pamphlet supersedes TRADOC Pamphlet 71-6, 17 September 1990.

Corps)

h. TRADOC Reg 11-16 (Development and Management of Operational Concepts)

i. TRADOC Pam 525-49 (Ammunition Support on the AirLand Battlefield)

1-3. Explanation of abbreviations and terms.
The glossary contains abbreviations and explanations of special terms used in this concept.

1-4. Overview.

a. MOADS is the foundation for future ammunition support to the ALB; however, the needs of deployed combat forces require rapid movement of ammunition to ensure successful tactical operations on the ALB. The current structure requires a repeated lift capability at CSAs and ammunition supply points (ASPs) and cannot respond quickly to fluctuations on the battlefield. Forward ammunition stocks are not easily relocated or repositioned within the commander's decision window for application of deep attack principles or nonlinear tactical maneuvers.

b. Large quantities of grounded ammunition stocks present lucrative targets for all levels of threat forces. Threat forces will make a concerted effort to locate, target, and destroy ammunition operations storage sites to degrade U.S. combat capabilities and effectiveness. Threat forces include the following:

(1) Conventional, unconventional and special purpose forces.

(2) Air mobile, ground, and airborne units.

(3) Tactical and bomber aircraft.

(4) Long-range artillery, rockets, and missiles (air and ground launched).

(5) Nuclear, biological, and chemical (NBC) weapons.

(6) Directed energy weapons.

c. Threat forces vary in size from one-man saboteurs to an operational maneuver group. The ammunition distribution system must be designed so that a nuclear or nonnuclear attack on one or several storage sites does not produce catastrophic losses to the theater or corps.

d. The PLS enhances the MOADS. The PLS facilitates the relocation of ammunition stocks by combining the use of loaded sideless containers (SCs) and PLS transportation prime movers in ammunition supply point (CSAs, ASPs, and ATPs). Stocks are no longer grounded but are stored on SCs. These SCs, in simplified terms, slide directly on or off the PLS vehicle. The vehicle can drop off or pick up an SC loaded with ammunition in a matter of minutes. The ammunition transfer and movement capability increases, and the need for organic MHE decreases.

e. The PLS is a highly flexible system that is emplo - able worldwide and complements operational requirements of the ALB. PLS eliminates the need to transload ammunition for those user units owning PLS vehicles, freeing MHE and personnel from transload operations. Those units having PLS capabilities will normally pick up loaded SCs of ammunition at designatedammunition supply points. Currently, the only units designated to receive the PLS vehicle are corps transportation units, direct support (DS) and general support (GS) ammunition companies, and self-propelled (8-inch, 155-mm) artillery units. Units not equipped with PLS will continue to be supported at designated supply/transfer points using onboard MHE or ammunition supply/transfer point MHE to transload ammunition onto organic vehicles. If and when Multiple Launch Rocket System (MLRS) units are equipped with PLS vehicles, they will be supplied in the same manner as other artillery units with PLS vehicles. In the future, SCs may allow throughput of ammunition directly from Continental United States (CONUS) to the using unit, reducing the need for intermediate handling.

1-5. Limitations.

a. PLS must be fielded in corps sets. A corps set consists of corps transportation units, DS and GS ammunition companies, self-propelled artillery units, and additional SCs for storage of ammunition at the theater storage are a (TSA), CSA, and ASP.

b. The ammunition distribution system uses airtransportation. SCs will be transportable by C-141, C-5, C-130, and C-17 aircraft and can be carried externally by CH-47D helicopters.

Chapter 2
Concept

2-1. Continuous refill system distribution.
Ammunition support in a theater of operations is based on a continuous refill system distribution to the ATPs and ASPs in the division area. Stocks issued to users are replenished by stocks moved up from storage areas in the rear. Ammunition is delivered on SCs from CSAs and ASPs by PLS prime movers to the ATPs. The ATPs receive 75 percent of their ammunition from the CSA and 25 percent from the ASPs.

2-2. Shipment and storage.
A theater's ammunition is shipped from CONUS to seaports, airheads, or logistics over-the-shore operations sites. Once in theater, the ammunition (containerized or breakbulk) is shipped on theater transportation assets to the TSA or the CSA.

a. Theater Storage Area. The TSA stores up to 30 days of supply of the theater's Class V reserves. One or more GS ammunition companies operates the TSA. The TSA receives 100 percent of its ammunition from the port of debarkation (POD). The TSA generally ships ammunition on theater line haul trailers or rail flatcars to the CSA. The TSA may use inland waterways if available. Theater transportation will not include PLS prime movers unless they are available from host nation support units. TSAs also provide support on an area basis to communication zone users who pick up required/allocated ammunition at their supporting TSA.

b. Corps storage area. The CSA maintains 7 to 10 days of supply for the supported corps. One or more GS

ammunition companies, depending on the corps authorized stockage level operate the CSA. The CSA receives up to 50 percent of its ammunition from the POD. The rest, 50 percent or more, comes from the TSA transported on line haul trailers or rail flatcars. Ammunition received by the CSA can be in either CCL or single Department of Defense Identification Code (DODIC) configuration. All ammunition shipped from the CSA to ATPs will be combat-configured loads on PLS SCs transported by corps transportation units using PLS prime movers. Ammunition shipped from the CSA to ASPs may be in breakbulk or single DODIC configuration.

(1) Based on divisional forecasted needs and updated changes, the CSA, using PLS corps transportation, ships ammunition to the ATP in CCL configuration.

(2) The CSAs provide support to units operating in the corps rear on an area basis with local units picking up required/allocated ammunition at the CSA.

c. Ammunition supply prints. ASPs maintain a 1- to 3- day supply of ammunition to meet surge and emergency requirements for divisional and nondivisional units. ASP stockage levels are dependent on tactical plans, availability of ammunition, and vulnerability of lines of communication (LOC) to interdictions (air or ground). Their primary role is to allow continuous resupply to ATPs even if the CSA-ATP LOC is interrupted.

(1) The DS ammunition company is capable of operating up to three ASPs and provides personnel and equipment for operation of an ATP. One hundred percent of the tonnage arriving at the ASPs is shipped from the CSA in either break bulk or single DODIC configuration on PLS vehicles.

(2) The ASP can provide up to 25 percent of the division requirement in the form of CCL, break bulk, and single DODIC shipments on PLS SCs. ASPs primarily support the ATPs but will provide support on an area basis when required.

d. Ammunition transfer point. Corps PLS vehicles supply the three forward ATPs organic to the forward support battalion of the division and the ATP operated by the DS ammunition company. These ATPs provide support, on an area basis, to divisional units and corps units (in support of division) based upon established corps/division priorities. Forward ATP supplies, equipment, and personnel move with the brigade trains.

(1) The ATP receives 75 percent of its ammunition from the CSA and 25 percent from the ASP. The ammunition shipped to ATPs is carried on corps PLS vehicles. Seventy-five percent of the ammunition from the CSA and 25 percent from the ASP is shipped to ATPs on corps PLS vehicles. Ammunition is transferred from corps PLS vehicles to the user's tactical vehicles, using either resupply vehicles with onboard MHE, such as Heavy Expanded Mobility Tactical Truck (HEMTT) or PLS, or the ATP's organic MHE. The division ammunition office (DAO) coordinates ATP operations/resupply with corps and divisional units. All division and corps users will pick up their ammunition at the DAO- designated ASP or ATP. The ATPs are replenished as required.

(2) An ATP staffed with personnel and equipment form the DS ammunition company of the corps support group. This ATP augments the three brigade ATPs so that divisional and corps units can receive 100 percent of their ammunition through ATPs. This ATP provides support on an area basis to divisional and corps units as directed by the DAO.

(3) Under emergency/surge conditions and, when METT -T factors permit, ammunition may be delivered to the battalion trains area of those units equipped with PLS vehicles.

(4) Multiple Launch Rocket System ammunition for divisional and corps units will be delivered to designated ATPs. Using units will transload rocket pods from corps PLS vehicles onto user vehicles, using their onboard MHE.

(5) Corps transportation assets will recover empty SCs at the ATP and return them to the ammunition distribution system. Empty PLS SCs are designed to allow stacking one upon another, allowing movement of more than one SC per lift. Using units equipped with PLS vehicles are responsible for managing and recovering SCs used for internal distribution. At the ATP, exchange of empty SCs from the using unit should be on a one-for-one basis with loaded SCs. If corps transportation units are directed to deliver loaded SCs tothe using unit field trains area, the using unit should provide empty SCs to the using battalion trains area for recovery by corps transportation trucks. If such provisions are not possible, the using unit will consolidate empty SCs and deliver them to the supporting ATP as soon as possible for subsequent reintegration into the distribution system. Accountability and control of war reserve SCs are covered by AR 710-1, Chapter 6.

(a) During transition to war, SCs will be loaded at storage sites and released for movement to upload forward locations. Once ammunition starts flowing to using combat units, loaded SCs will be exchanged for unloaded ones on a one-for-one basis. Retrograded SCs will be delivered to designated ammunition activities for their subsequent MOADS use.

(b) The Department of the Army Movement Management System (DAMMS) will provide transportation management information that allows in transit visibility. The theater/corps/division movement control organization will control the flow in accordance with procedures in FM 55-10.

(6) Ammunition support for rear operations is by supply point distribution. Units draw from the nearest ammunition supply activity—ASP, CSA, or TSA.

(7) FM 9-6, chapter 2, describes the communications requirements and capabilities of ammunition units from ATP to Theater Army Area Command (TAACOM) Materiel Management Center (MMC). The use of PLS within the MOADS system does not create additional ammunition communications requirements or impact on the existing communications capabilities of ammunition units.

(8) The introduction of PLS within the MOADS does not generate additional information management requirements within the Standard Army Ammunition System (SAAS) beyond that outlined in FM 9-6.

2-3. Effects of palletized load system on current ammunition distribution system. The PLS, in simplified terms, allows an SC of ammunition to slide on or off the PLS prime mover and trailer, which provides more flexibility in ammunition distribution by reducing the need for MHE. Because the transfer is quicker, users spend less time in the area, thus reducing the signature of the ammunition supply points and ammunition transfer points. (See figure 2-1). The introduction of the PLS in the current concept causes some changes in ammunition distribution throughout the theater.

a. The port of debarkation receives 100 percent of its ammunition stocks from the wholesale Class V system, either from CONUS depots or Outside the Continental United States (OCONUS) pre-positioned war reserve sites. This ammunition will arrive at the port in either break bulk or containerized shipments. Ammunition will be shipped forward to the TSAs and CSAs via theater transportation assets.

b. The TSAs receive 100 percent of their ammunition from PODs. Containerized ammunition arriving from the POD will be removed from the container and loaded onto SCs in a single DODIC configuration for storage at the TSA or forward movement to the CSA via theater transportation assets.

c. The CSA receives 50 percent of its Class V stock requirement from the POD, either break bulk or containerized. The remaining 50 percent of the CSA requirement will arrive on SCs from the TSA. The CSA builds CCLs of ammunition on SCs and ships them to ATPs on corps transportation PLS vehicles. Additionally, CSAs ship single DODIC break bulk stocks on SCs to ASPs on corps transportation PLS vehicles.

d. The CSA ships 100 percent of the ASP requirements on break bulk or single, DODIC-loaded SCs and 75 percent of the ATP requirements on CCL-loaded SCs transported by PLS vehicles. The ASP ships the remain-

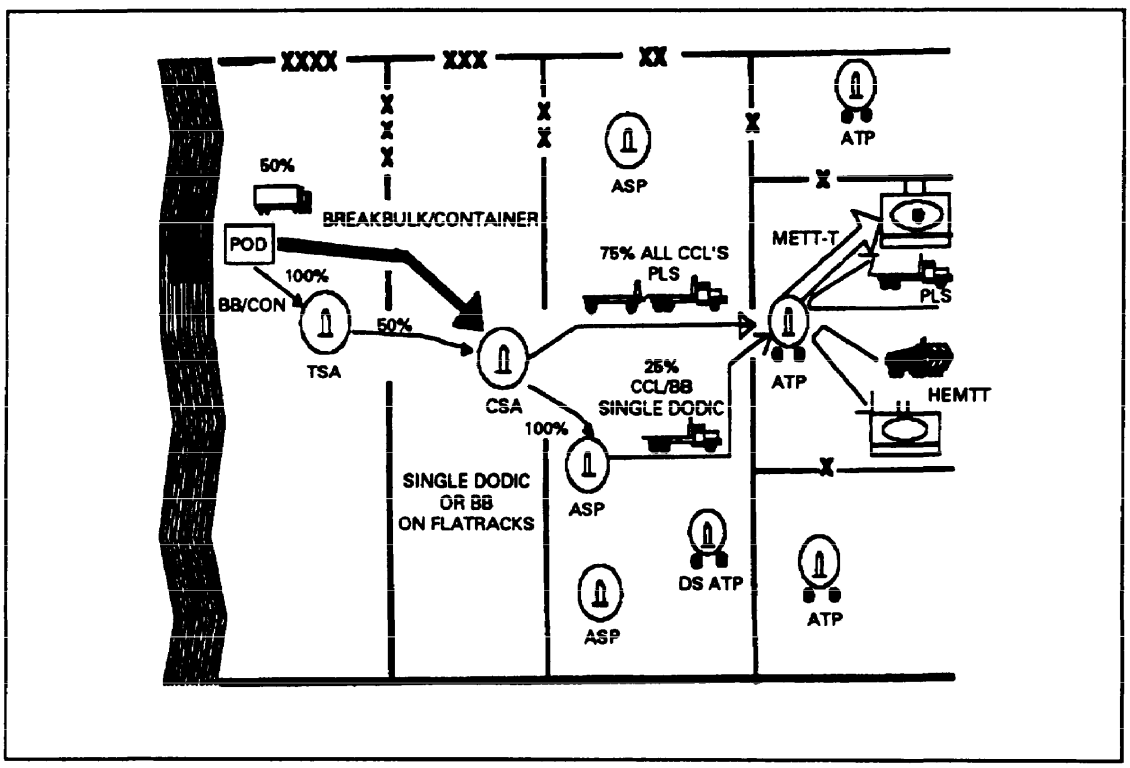

Figure 2-1.
MANEUVER ORIENTED AMMUNITION DISTRIBUTION SYSTEM USING PALLETIZED LOAD SYSTEM (PLS)

ing 25 percent of teh ATP requirements in the form of CCLs adn single DODIC shipments.

e. The addition of PLS to MOADS will eliminate the need to transload ammunition at ATPs for those user units owning PLS vehicles, thus reducing the requirement for personnel and MHE involved in transloading operations.

f. While the ultimate goal of using PLS is to reduce transload functions at the ATP, units not possessing PLS vehicles will still require some transload support. Unit vehicles with on-board MHE will be used to self-transload ammunition whenever possible. Ammunition units and ATPs will retain adequate personnel and MHE to provide transload support to non-PLS units.

g. When an SC is delivered to the battalion trains area, ATP, or ASP, corps transportation picks up an empty SC for recycling within the distribution system.

h. The ammunition distribution system uses air transportation. PLS SCs will be air transportable.

i. The PLS offers the potential to connect the whole sale and retail ammunition distribution system by loading SCs at themanufacturer and shipping them to any destination within the system. Interface between the wholesale/retail systems would reduce redundant handling and decrease shipping time.

j. Impact assessments for doctrine, training, leader development, organization, and materiel are provided in appendixes A, B, C, D, and E respectively.

Appendix A
Doctrine

Where appropriate, MOADS< including PLS doctrine, will fit the standard Army supply system. Specific comments and guidelines regfarding MOADS are found in several manuals. Whe PLS is fielded , the following publications may require revision.

a. AR 385-64
(Ammunition and Explosives Safety Standards)

b. FM 9-6
(Munitions Support in the Theater of Operations)

c. FM 9-13
(Ammunition Handbook)

d. FM 9-38
(Conventional Ammunition Unit Operations)

e. FM 63-3
(Combat Service Support Operations - Corps)

f. FM 100-10
(Combat Service Support)

g. FM 100-16
(Support Operations)

h. ST 9-38-1
(Division Ammunition Operations)

i. TM 9-1300-206
(Ammunition Explosive Standards)

Appendix B
Training

a. Existing training programs impacted at the U.S. army Ordnance Missile and Munitions Center and School include the following:

(1) Some instruction in the Maneuver Oriented Ammunition Distribution System utilizing Palletized Load System include in the program of instruction (POI) for Ordnance Officer advances and Basic courses.

(2) Some instruction for MOADS/PLS in the 55B, 55X, Advanced and Basic Warrant Officer, Basis Noncommis -sioned Officer Course (BNCOC) and Advanced Noncom missioned Officer course (ANCOC) courses.

b. Implementation of MOADS/PLS initial operational capability (IOC)(should not generate any new instructor contact hours for courses in para B-1.

c. MOADS/PLS training will be included in corps storage area, ammunition supply point, and ammunition transfer point exercises conducted during 55B, BNCOC, and ANCOC courses.

d. The system training plan (STRAP) for the PLS developed by the U.S. Army Transportation School on 1 November 1990. The plan identifies training impacts for transportation, field artillery, ordnance munitions, and ordnance maintenance proponents, including active and reserve components. Paragraph 8 of the STRAP, "Significant Training Issues at Risk," identifies no problem are with system or proponent training.

Appendix C
Leader Development

There are no specific leader development impacts identified at this time.

Appendix D
Organizations

a. Successful tactical operations on the AirLand Battlefield (ALB) will require rapid movement of ammunition. The current structure requires a repeated lift capability at corps storage areas and ammunition storage points. It cannot respons quickly to fluctuations on the battlefield. while the Maneuver Oriented ammunicition Distribution System serves as the foundation for future ammunition support to the ALB, it does not allow forward ammunition stocks to be easily relocated or repositioned.

b. The Palletized Load System (PLS) will enhance MOADS. The PLS will be incorporated into unit operations as a means of providing an efficient method of storage and distribution of ammunition as follows:

(1) The general support (GS) ammunition companyfrom the theater storage area (TSA) to the CSA and from the CSA to the combat user.

(2) The direct support (DS) ammunition company—from the ASPs through ammunition transfer points to the combat user or, in some instances, directly to combat

users.

c. The mission and support requirements of such organizations indicate they should be 50 percent mobile with organic equipement/vehicles.

(1) The DS ammunition company (at ASP, ATP) must be able to establish and operate three ATPs and one ATP engaged in the receipt, storage, combat configuration, and issue of conventional ammunition to the combat user using the PLS.

(2) The GS ammunition company (at TSA, CSA) must be able to establish and operate an ammunition supply facility engaged in the receipt, storage, rewarehousing, and container unstuffing of conventional ammunition. Additionally, the GS ammunition company at the CSA builds combat-configured loads and issues conventional ammunition using the PLS.

Appendix E
Materiel

Material requirements. Incorporation of the Palletized Load System (PLS) into ammunition units provides for increased efficiency in ammunition distribution by reduing the transload requirement and need for MHE.

Glossary
Section I

Abbreviations

ADA	air defense artillery
ALB	AirLand Battle/Battlefield
ASP	ammunition supply point
ATP	ammunition transfer point
BB	break bulk
BSA	brigade support area
BTOE	base table of organization and equipement
CCL	combat-configured load
CON	containerized
CONUS	Continental United states
CSA	corps storage area
CSR	controlled supply rate
DAMMS	Department of the Army Movement Management System
DAO	division ammunition office
DIVARTY	division artillery
DODIC	Department of Defense Identification Code
DS	direct support
FAASV	field artillery ammunition support vehicles
GS	general support
HEMTT	heavy expanded mobility tactical truck
HNS	host nation support
LOC	lines of communication
LOTS	logistics over the shore
MECH	mechanized
MHE	materials handling equipment
MLRS	Multiple Launch Rocket System
MOADS	Maneuver Oriented Ammunition Distribution System
MMC	Material Management Center
MOPP	missiong oriented protective posture
NBC	nuclear, biological, and chemical
OCONUS	Outside Continental United states
OTOE	objective table of taganization adn equipment
PLS	Palletized Load System
POD	port of debarkation
SC	sideless container
S&P	stake and platform trailer
TAACOM	Theater Army Area Command
TSA	theater storage area

Section ii
Terms

Ammunition transfer point
The point where corps transportation Palletized Load System vehicles, loaded with ammunition, rendezvous with user representatives and ground their ammunition loaded SC, pick up empty SC and return to designated distribution points.

Combat configured loads
A preplanned package of ammunition transported as a single unit. CCLs are designed to support a type unit or weapon system and to maximize the transportation assets available either a PLS SC or a stake & platform (S&P) trailer. The design of CCLs should take into consideration both U.S. and host nation transportation assets. (See also FM 9-6, 1 Sep 89).

DODIC
Department of defense Identification Code used to identify a type round of ammunition (i.e., Ao8o for 5.56-mm blank).

Port of debarkation
The point of initial off-load of ammunition received in theater from CONUS.

Push/pull system
Ammunition is delivered delivered regularly on a push type basis. Forecasted changes to the type and quantity of ammunitin delivered are submitted by the unit when the standard delivery requires deviation.

Self-loading
A vehicle with the capability to load itself using on-board materials handling equipment.

Throughout
Term used to describe shipments that bypass intermediate activities in the supply system, thereby avoiding multiple handling.

APPENDIX B

COMMANDER'S CHECKLISTS

The suggested checklists in this appendix are provided for the commander's use in analyzing and evaluating unit operational readiness and preparing for a WCTO. These checklists are not all-encompassing.

ADMINISTRATIVE CHECKLIST

1. What is the mission of the ASP, CSA, or TSA?
2. Are there adequate communication and coordination among the MMCs, the ammunition storage activities, and the transportation representatives?
3. Is liaison being maintained between the issuing ASP, CSA, TSA, and the using units?
4. Are the ASPs within reasonable distance of the using units?
5. Is there an up-to-date map showing the layout of the ammunition supply activity?
6. Is motor vehicle transportation adequate within the ASP, CSA, or TSA?
7. Are the protective clothing and equipment required by TM 9-1300-206 available and used when handling chemical ammunition?
8. Are there shortages of equipment or supplies?
9. Are internal and external SOPs up to date?

OPERATIONS CHECKLIST

1. What is the status of each individual's training and the unit's training? How much time is devoted to each? Are all areas of concern trained (for example, communications MSE)?
2. Are key personnel being cross-trained?
3. Does the ammunition supply activity have a field location plan? Is it adequate?
4. Is downtime excessive (elapsed time between the arrival and the departure of trucks)?
5. Is an attempt being made to segregate ammunition by lot at the transportation head or at the ASP or depot?
6. Are records kept of accident rates? Are the general causes determined?
7. Does the ammunition supply activity have SOPs that cover the following items:
   a. Operations.
   b. Routine security.
   c. Minor disturbances.
   d. Major disturbances.
   e. Uprisings.
   f. Fire.
   g. Enemy action.
   h. NBC defense.
   i. Accident reporting.
   j. Displacement, evacuation, or emergency destruction of the ASP.
   k. Maintenance operations.
   l. Storage plans.
   m. UXO agents.

8. Where are the principal bottlenecks? Are they related to receipt, issue, retrograde, handling, or paperwork?

RECORDS AND REPORTS CHECKLIST

1. Have requisitions or letter requests concerning the removal of bottlenecks been submitted to higher headquarters? Is any follow-up action needed?
2. Do personnel know the ammunition reporting system?
3. Are reports forwarded on time?
4. Do personnel understand and follow the system of processing stock control and accounting documents?
5. Are partial shipments that were made against shipping documents reported promptly to consignees?
6. Are other means of communication used to notify the consignee of a shipment when the letter of notification is delayed?
7. Are condition code classifications on the stock record cards correct?
8. Are ammunition serviceability records and suspension/restriction information available for all lots?

STORAGE, ISSUE, AND RECEIPT CHECKLIST

1. Are ammunition storage areas and roads clearly marked and easily identified?
2. Is there evidence of any unnecessary handling of ammunition?
3. Are prescribed quantity-distance tables being followed based on METT-T (AR 385-64)?
4. Is rewarehousing being used to consolidate items in order to accommodate new, incoming shipments?
5. What is the general condition of shelters, buildings (if available), roads, and grounds?
6. Are items subject to rapid deterioration due to storage conditions?
7. Are ammunition stacks stable and properly segregated by type and lot to make mission work easier?
8. Does water run under ammunition stacks? If so, is the problem being corrected?
9. Are classified ammunition items safeguarded properly?
10. Are required supplies and equipment on hand or on order?

INSPECTION AND CLASSIFICATION CHECKLIST

1. Is serviceable, unserviceable, and hazardous ammunition and CEA physically segregated in storage?
2. If storage areas contain types of ammunition that are incompatible, are they being rewarehoused to correct the deficiency?
3. Are broken packages inspected and repaired before being placed in final storage?
4. What action is being taken to minimize pilferage?
5. Are proper steps being taken to find and placard unserviceable and dangerous lots of ammunition to restrict them from being issued? Are these stocks reported for disposition?
6. Can ammunition checkers correctly identify and recognize all ammunition items stored at the ASP?

MAINTENANCE CHECKLIST

1. Is a WCTO maintenance program in operation?
2. Are maintenance operations personnel being trained adequately?
3. Is there a qualified maintenance supervisor on the job?
4. Is the maintenance operations supervisor familiar with the applicable provisions in TM 9-1300-206?
5. Are maintenance records being furnished to the records section for appropriate change of condition code?
6. Is the WCTO maintenance operations SOP up to date?

7. Are required maintenance supplies and equipment on hand or on order?

SAFETY AND SECURITY CHECKLIST

1. Is hazardous ammunition disposed of safely?
2. Are the requirements in TM 9-1300-206 being met when destroying and disposing of ammunition?
3. How well are personnel trained to perform their duties in case of fire?
4. Are rules prohibiting matches, smoking, lanterns, and so on in restricted areas being enforced?
5. Is rubbish allowed to accumulate in the storage area and around FSUs or stacks? If so, is the problem being corrected?
6. Are ASPs or depots being inspected with a view towards fire prevention and the elimination of fire hazards?

STAND-DOWN CHECKLIST

1. What is personnel status?
2. What is equipment status?
3. Have personnel been briefed?
4. What is the ASP condition status?
5. Has safety been considered?
6. What is the difference between WCTO and peacetime regulatory requirements?
7. What is the support structure (local transport and communications)?
8. What headquarters support (maintenance, personnel, medical, financial, religious, POL, PLL, supply, and so on) is required?
9. What are disposal operations? What EOD support is available?

A P P E N D I X C

AMMUNITION SUPPORT IN AN NBC ENVIRONMENT

This appendix describes ammunition support in a theater of operations where combatants have used, or are able to use, NBC weapons. This appendix supports AirLand Battle doctrine and should be used with emerging NBC defense doctrine and with TRADOC Pamphlet 525-20 and TRADOC Pamphlet 525-49.

NBC PROTECTION

Since the enemy will be capable of using NBC weapons on future battlefields, ammunition supply facilities and activities will become prime targets. Therefore, ammunition support systems must be structured with the capability and flexibility to continue operations in an NBC environment. Protective measures and procedures to offset the effects of NBC weapons should be integrated into daily operations. In an NBC environment, frequent testing for contamination of supplies and operational assets is required. Continuous monitoring is desirable.

CONTAMINATION AVOIDANCE

Contamination avoidance is one of the major problems to be faced in providing ammunition support in an NBC environment. It is also the key to survivability, Contamination avoidance is individual or unit measures taken to avoid or minimize NBC attacks and to reduce passive and active contamination avoidance measures.

Passive contamination avoidance measures are concealment, dispersion, deception, and the use of cover to reduce the probability of the enemy's using NBC weapons on US units and to minimize damage caused by NBC weapons if they are used. Active contamination avoidance measures are contamination control; detection, identification, and marking of contaminated areas; issuance of contamination warnings; and relocation or rerouting to an uncontaminated area.

To increase survivability and supportability, units should take necessary actions to avoid contamination, increase mobility, and lessen the initial and residual effects of nuclear weapons. For example, using smoke to cover operations and installations significantly lessens the light and thermal effects of a nuclear detonation. The following should be used as much as possible:

- Alarm and detection equipment.
- Unit dispersion (consistent with operational requirements).
- Overhead shelters.
- Shielding materials.
- NBC-hardened materials.
- Protective covers.
- Chemical-agent-resistant coating (CARC) paint.
- NBC reconnaissance assets.
- Technical tactical intelligence assets.
- NBC-hardened shelters and tents.

Ammunition stocks are stored in dispersed sites to minimize the effects of nuclear and chemical weapons and to complicate the enemy's target acquisition efforts. Class V materiel is separated from other commodities and kept as mobile as circumstances permit. Resupply is accomplished at night as often as possible.

AMMUNITION RESUPPLY

Conventional ammunition support units must try to provide uncontaminated ammunition to combat units. Primary emphasis should be placed on contamination avoidance measures. If uncontaminated ammunition is not available for issue, those items that will be introduced into a clean environment should be decontaminated first, Since ammunition support units lack decontamination capabilities, decontamination roles and procedures must be clearly understood. This way, the unit's assets are used most effectively. Refer to FM 3-5 and FM 3-100. Where possible, simple weathering should be allowed to reduce contamination to acceptable levels.

Protective overwraps on containers reduce the effects of chemical agents and make decontamination easier. This outer packaging protects the individual round from becoming contaminated while in storage or during the unpacking process. If ammunition is not packaged with protective overwrap, makeshift coverings (such as tarpaulins, plastic sheets, and so on) provide some degree of protection from contamination and can speed up decontamination. Any protected ammunition must be stored on a decontaminatable pallet.

Contaminated stocks are normally not issued; they are kept segregated from clean stocks until they are fully decontaminated. In emergency situations when there are not enough uncontaminated items available, certain contaminated items may be issued. Contaminated items are issued only if they will provide a decisive tactical advantage to the receiving unit. They will be issued first to units that are similarly contaminated. Only under the most extreme conditions will contaminated stocks be issued to an uncontaminated unit. The decision to issue contaminated items is made jointly by the issuing and the receiving commanders. The decision is based on the tactical situation, the criticality of the items, the type and extent of contamination, and resources available for decontamination. Every attempt must be made to avoid spreading contamination. Contaminated stocks must be clearly marked using standard North Atlantic Treaty Organization NBC markers. After issue, the user decontaminates, if necessary.

Dealing with contamination means that leaders at all levels must be more innovative and take more initiative than ever before. Paramount to success is the leader's ability to "read the threat" and respond accordingly. This means leaders must do the following

- Identify threat locations on the battlefield.
- Identify threat weapons (and associated agent loads) that can reach their locations.
- Disperse and cover exposed stocks to minimize vulnerability.
- Continually use intelligence assets to update the threat.

The transportation of contaminated ammunition must be carefully coordinated and conducted. It requires greater flexibility in routing, marshaling, serializing, and communicating. Because of the vapor clouds produced from vehicles carrying contaminated stocks, the hazard to terrain, the local population, and follow-on vehicles must be considered. The following measures can minimize the hazard of contaminated ammunition transport:

- Attempt to reduce decontamination as much as possible.
- Cover all loads with NBC-protective covers.
- Coordinate the movement of contaminated stock with the responsible movement control office.
- Designate specific routes as MSRs for contaminated supplies.
- Until all transportation vehicles have been equipped with collective protection, designate units with collective protection vehicles as contaminated ammunition handlers.

UNIT STANDING OPERATING PROCEDURES

Unit SOPs should be written according to the guidance in this appendix and the AR 385 series regulations (safety), the AR 380 series regulations (security), and the AR 190 series regulations (military police). Command SOPs may be used for format and organization guidelines. As a minimum, and in keeping with the mission of the supply system, SOPs should address the following areas:

- Dispersal of stocks within the storage area to prevent all of one type of ammunition from becoming contaminated.

- Weathering of contaminated stocks, if feasible.
- Decontamination of personnel, MHE, facilities, and stocks.
- Issuing contaminated stocks only as a last resort.
- Contamination avoidance by using International Standards Organization (ISO) containers, military-owned remountable containers, shrink wrap, CARC paint, NBC-protective covers, pallets, and agent-resistant packaging materials.
- Collective protection for rest and relief and C^2 facilities.
- Procedures to identify and mark contaminated stocks so there will not be accidental exposure to chemical agents.
- Transporting contaminated stocks using collec - tive protection vehicles and NBC-protective covers.
- Establish priorities for issuing of stocks to using units, including contaminated ammunition.

APPENDIX D

CARE AND PRESERVATION OF AMMUNITION AT THE ASP LEVEL

This appendix discusses care and preservation of ammunition at the ASP level. Care and preservation are the terms commonly used to describe ammunition maintenance. Care stresses protection. Preservation, while it includes protection, stresses maintenance. Both are performed at the ASP. Care and preservation of ammunition are critical for ensuring that stocks are serviceable for combat missions.

Care and preservation operations at the DS level are limited. These operations are normally limited to repalletizing, repacking, cleaning, removing rust from, repainting, and remarking ammunition. A care and preservation line is the ideal place to identify and segregate unexpended ammunition and to check it for serviceability. The line should be able to operate under the most austere and adverse conditions. A typical layout for a care and preservation line is shown in Figure D-1, page D-2. A brief discussion of care and preservation operations follows.

TEMPORARY STORAGE

ASPs must accept ammunition returned by using units. The segregation area of the ASP is used for the temporary holding (up to 180 days) of unexpended ammunition returned by using units. To avoid unnecessary segregation and to ensure that compatibility requirements of TM 9-1300-206 are met, only items of the same DODIC and lot number are placed in temporary storage.

INSPECTION

At the segregation area, unexpended ammunition is identified and segregated by type and lot number, checked for nonstandard or hazardous conditions, and repacked or palletized as required. Intraline distance and explosive and personnel limits as well as equipment specifications must comply with TM 9-1300-206.

All loose or opened ammunition is visually inspected to ensure that it is properly identified. Containers that have been opened must be checked to ensure that the items inside are what is named on the outside of the container. The contents of defective containers are inspected to determine serviceability. The inspector should also look for items that are not compatible and that are in a hazardous condition. Additional precautions should be taken when ammunition containing depleted uranium (DU) is handled (TB 9-1300-278).

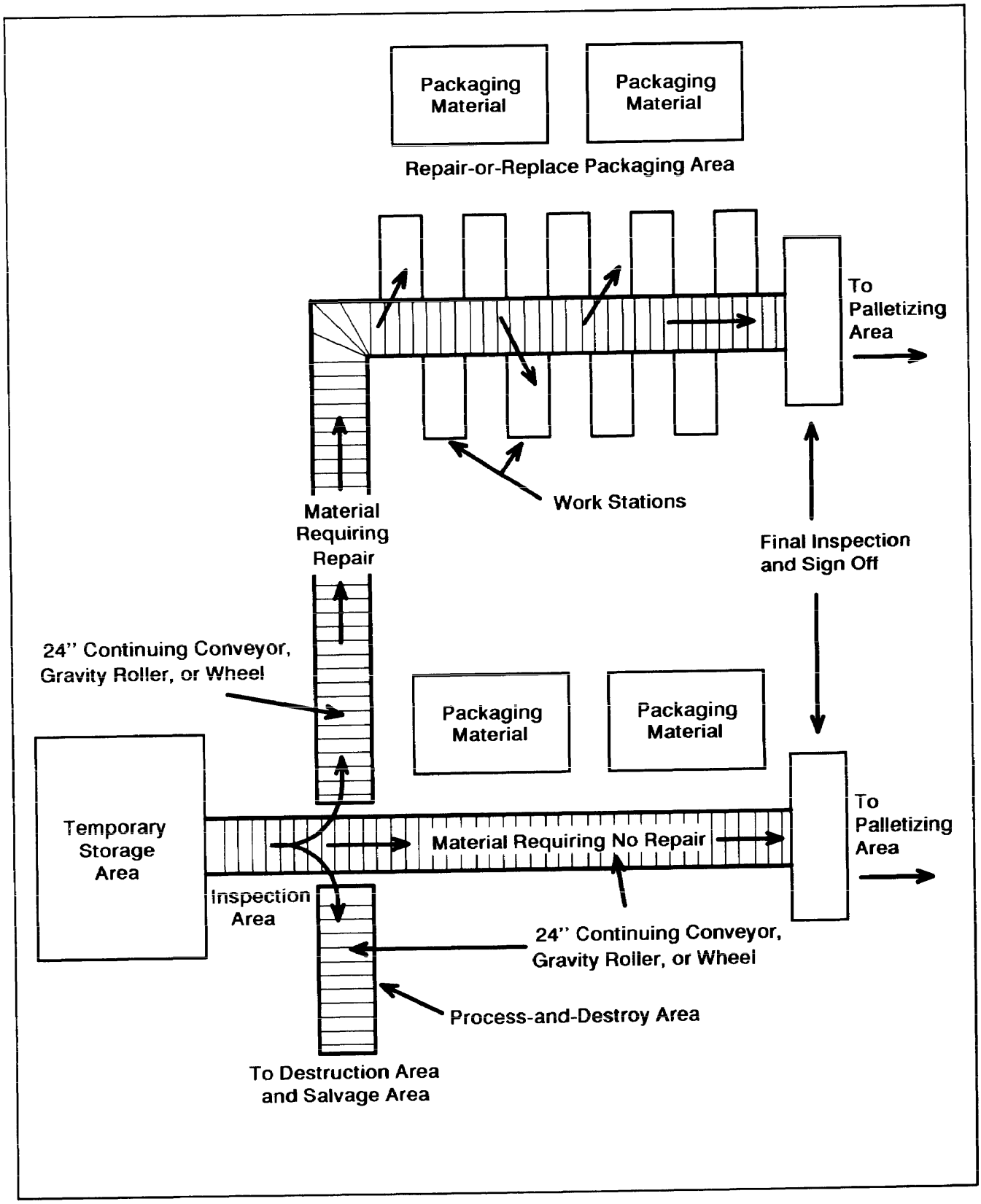

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Figure D-1. Typical layout for a care and preservation line.

Once inspected, serviceable items are sent to the palletizing area. Unserviceable but repairable items or containers are tagged to indicate the repair and sent to the repair-or-replace packaging area for repair. Suspended ammunition lots listed in TB 9-1300-385 are considered not repairable and sent to the process-and-destroy area. Nonrepairable ammunition and packaging that are considered explosive hazards are repacked in suitable containers, labeled, and sent to the process-and-destroy area for destruction as soon as possible. Any scrap material found during the inspection is placed in suitable containers and sent to the salvage area.

REPAIR OR REPLACE PACKAGING

When an inspection calls for repairs to a container, the contents of the container must be removed first. The only exceptions are to restencil or retouch markings or to replace bands on a container. Repairable containers are repaired as tagged. When repairs are complete, the ammunition is placed back in the containers. Enough filler material is used to ensure a tight fit. Repaired containers are restenciled or remarked, if necessary. Seals and metal bands are then replaced, and the containers are sent to the palletizing area.

Rockets and items loaded with white phosphorous (WP) and plasticized white phosphorous (PWP) are packaged with all of the nose ends pointed in the same direction. The outside of the containers are then marked "Nose End" to indicate the location of the forward end of the rounds.

When an inspection calls for a container to be replaced, the seals and the metal or wire bands are removed from the outside of the container first. The contents and filler material are then removed. The nonrepairable container is sent to the process-and-destroy area. Once the container has been replaced, the contents and filler material are packed in the new container. The outside of the new container is stenciled with markings identical to the markings on the original container. If palletization is required, the container is sent to the palletizing area. If palletization is not required, the container is sent to a storage area or shipping site within the ASP after packaging.

PALLETIZE BOXED AMMUNITION

Once processed and packaged, ammunition should be palletized according to the proper United States Army Materiel Command (AMC) drawing and the appropriate appendixes to the drawing. Some drawings are still designated as US Army Development and Readiness Command (DARCOM) drawings.

No more than one ammunition lot is permitted on any one pallet. Palletized units are inspected to ensure that they conform to standards. Once inspected, pallets are transferred to a storage area or to a shipping site within the ASP.

PROCESS AND DESTROY AMMUNITION AND SCRAP MATERIAL

As stated earlier, preservation operations at the ASP are limited. The processing of conventional ammunition at the ASP is generally limited to cleaning, painting, and remarking. Operations that are beyond the unit's capability are reported to higher headquarters for disposition using DA Form 2415 (Ammunition Condition Report) or facsimile-formatted document.

Destruction of unserviceable ammunition and packaging that poses an explosive hazard to personnel is done by, or under the supervision of, EOD personnel. Routine disposal of unserviceable ammunition and packaging is done by, or under the supervision of, surveillance personnel. The general criteria for disposal operations are in TM 9-1300-206, TM 9-1375-213-12, and FM 5-250.

APPENDIX E

SAFETY

This appendix discusses the three levels where safety awareness is most effective. The Army Safety Program and safety areas of concern, including the ammunition itself, explosives in general, and MHE are also discussed. Risk assessment and management are explored, and the various safety plans needed are presented. Finally, reports of malfunction are discussed.

SAFETY LEVELS

COMMAND

At all echelons, safety is a command responsibility. All commanders must take an active and aggressive leadership position toward safety. To this end, the commander must appoint a safety officer and organize a safety committee consisting of technical and supervisory personnel within the unit.

The safety officer must prepare a unit safety program and a safety field SOP that include the following:

- Safety committee activities and responsibilities.
- Safety training requirements and training schedule.
- Inspection procedures to detect safety violations and ensure that corrections are made.
- Proactive prevention and correction of unsafe conditions and practices,
- First-aid training requirements and training schedule.
- Safety education and promotion that keeps safety awareness levels high.
- Investigation of accidents to determine cause and corrective measures. (For example, determine the who, what, when, and how of an accident.)

The safety committee should review ASP operations for safety, formulate and recommend safety rules, establish standards for safeguards, and outline methods for correcting violations during ammunition operations. The committee's recommendations are reviewed and adopted, where advisable, by the unit commander.

LEADER

Every soldier is a key to preventing accidents. Leaders ensure that soldiers perform duties safely. From first-line supervisors to middle- and upper-level managers, the leader must always stress safety. Keeping soldiers aware, ensuring that they are careful, halting unsafe operations, planning, and preparation are the proactive measures the leader takes to prevent accidents.

INDIVIDUAL

The key to a good safety program and the focus of the whole safety effort is to prevent individuals from having accidents. One of the greatest causes of accidents is an individual not doing something that should have been done. Usually, the individual thought it was more time consuming or too bothersome to go the extra step to ensure safety. If this one issue could be resolved, the Army would save hundreds of lives and millions of dollars. The prevention equation is simple: *Training + Equipment + Motivation + Execute with Caution = Safety.* A problem with any one of these elements can lead to an

accident. A problem with more than one of these elements often leads to disaster. The one who normally knows whether or not all elements are in the appropriate quantity is the individual.

UNIT SAFETY PROGRAM

The unit safety program is directed by AR 385-10 and DA Pamphlet 385-1. The program requires that unit safety personnel meet the following requirements:

- Be appointed in writing on orders.
- Be a commissioned officer at battalion and higher unit levels.
- Be in the rank of staff sergeant or higher at company level.
- Have completed, or will complete, a local unit safety officer course.
- Have one year or more retainability in the unit upon duty appointment.
- Give their safety officer duties proper priority.
- Report directly to the commander on safety-related matters.

The safety staff must also administer the unit safety program. This is accomplished by ensuring that practices and procedures that minimize accident risk, serious injury, or property loss are incorporated in directives, SOPs, LOIs, policy letters, and training plans.

Unit safety personnel perform required safety and accident prevention functions for the unit. AR 385-10 and DA Pamphlet 385-1 list these functions. Dependent on where a unit is located, or what its particular mission is, safety personnel may need to perform some or all of these functions. Part of the safety officer's initial assessment should be the suitability of these functions to the unit.

AREAS OF CONCERN

AMMUNITION AND EXPLOSIVES

Ammunition and explosives safety is covered by AR 385-64 and TM 9-1300-206. These two references prescribe the Army's general safety policies and standards for ammunition, explosives, liquid propellants, and related facilities and activities. Both references are based on DOD 5154.4-S.

These references cover the following:

- Responsibilities.
- Quantity-distance standards.
- Waiver authority and requests for waivers.
- Exemptions.
- Effects of explosions.
- Permissible exposures,
- Hazard classification.
- Compatibility groups.
- Personnel protection.
- Facilities construction and siting.
- Electrical standards
- Lightning protection.
- Fire fighting.
- Chemical-agent standards.
- Mishap reporting in relation to the storage, packing, shipping, maintenance, and destruction of ammunition and explosives.

Conventional ammunition unit commanders must ensure that all ammunition and explosives operations and activities are performed according to safety regulations, directives, and theater policy. Because of their destructive nature, ammunition and explosives demand constant safety awareness on the part of all personnel responsible for them, including the combat user. Carelessness, faulty equipment, hazardous working conditions, and unsafe practices may result in the loss of life, injury, or property damage. In wartime, these factors disrupt ammunition support. They could affect the success of a battle. After the battle of DS/S was over, the US lost more vehicles in one ammunition-related accident than it lost to enemy forces. This accident occurred when the ammunition and explosives in one vehicle ignited, and the resulting fire spread to adjacent vehicles that were parked too closely together. Many people were injured in the incident, and two soldiers were killed in the cleanup of the area afterwards.

The concern for the safety of personnel and property is paramount in Department of Defense (DOD) and DA safety regulations. These regulations prescribe universally applicable standards and practices. They require that safety programs be prepared and implemented to include fire plans (prevention, protection, and fighting), destruction plans, accident and incident control, and reporting plans. These regulations impose special safety requirements for high explosives, chemical agents, electro-explosive devices, and exposure to volatile liquids and corrosives.

Whenever and wherever ammunition and explosives are handled, stored, or moved, rigid enforcement of safety regulations and strict observance of safety practices are mandatory. The TA commander announces policies and, through the TAACOM and COSCOM, prescribes safety procedures for ammunition and explosives in the theater of operations.

General Hazards

Ammunition and explosives are relatively safe to handle as long as consideration is given to the characteristics of each type of munition or explosive involved, how it is assembled, the nature of the operation being performed, and normal safety precautions. Safety requirements for explosives and ammunition are in AR 385-64 and TM 9-1300-206, as are procedures to waive safety standards for ammunition and explosives.

Storage Hazards

Ammunition and explosives storage hazards include, but are not limited to, fire, explosion, fragmentation, and contamination. Fires in ammunition and explosives storage areas may be spread by hot fragments from one stack to another or by fire spreading along the ground through undergrowth, dry wood, and debris. Incompatible ammunition and explosives when stored together present another hazard. The appropriate WCTO quantity-distance and compatibility tables in AR 385-64 and TM 9-1300-206 must be used to determine those components that may be stored together and to make certain that safe distances are maintained between all Class V materiel in storage. In WCTO, and depending on the tactical situation, quantity-distance requirements should be followed to the greatest extent possible. Ammunition that contains DU requires special storage and handling procedures. Refer to AR 385-11 for additional information.

Transportation Hazards

In view of the hazards associated with traffic accidents or saboteur incidents, the commander of the shipping unit is responsible for ensuring safe transit. Local practices applicable to circumstances in the theater of operations are developed in unit field SOPs from the fundamentals prescribed in TM 9-1300-206. Special emphasis should be placed on safety precautions for night operations. BOE Tariff No. 6000, AR 55-355, and regulations of the host nations dictate the procedures to be followed when transporting hazardous ammunition. The governing regulations and publications for specific types of shipments follow.

Rail. TM 9-1300-206 and BOE Tariff No. 6000 cover safety precautions, loading, blocking and bracing, certification of railcars, spotting of loaded railcars, and inspection of railcars.

Vehicular. TM 9-1300-206 covers safety requirements, inspection criteria, and technical escort standards. This technical manual provides inspection criteria for WCTO. FM 55-60 covers the responsibilities of the shipper and the carrier.

Air. TM 9-1300-206, TM 38-250, and BOE Tariff No. 6000 cover safety precautions, aircraft specifications, operating standards, loading and unloading procedures, and special handling certification.

Water. TM 9-1300-206 and BOE Tariff No. 6000 cover technical information on water vessel shipments.

UNEXPLODED ORDNANCE

All soldiers must be able to recognize and then react to a UXO hazard. Reaction includes avoiding the UXO (if mission permits) and marking and reporting the hazard. If the UXO cannot be avoided, it may be necessary to take protective measures to reduce the risk to personnel and to minimize damage to equipment or facilities. All soldiers need to be trained on the above tasks to ensure that no soldier is exposed to any unacceptable risks.

The reporting of UXOs on the modern battlefield will require timely and accurate information. The UXO Spot Report starts with the soldier on the battlefield and moves through the chain of command to the unit CP. It then passes through operational channels until it reaches the DISCOM, the CSG, or the area support group (ASG). These commands task the assets needed to respond to the UXO. The report initiated by the soldier who finds the UXO supplies the necessary information to task UXO response resources and to prioritize the UXO response. The format for this report (a logic tree), safety considerations, guidance on protective measures, and drawings of various ordnance may be found on GTA 9-12-1. Additional UXO guidance will be in FM 21-16 when it is published in fiscal year 1994.

EQUIPMENT

Electrical

Electrical equipment is a safety hazard by its very nature. Many explosive devices are sensitive to electricity, When using electrical equipment, soldiers must follow operating instructions exactly. Electrically powered equipment should never be used where prohibited. To prevent electrical sparking, all electrical switches, sockets, plugs, and outlets should be of the standard explosion-proof type.

Grounding dissipates accumulated electrical charges. Sandy soil should be made wet and the ground stake driven further into the ground for a better ground. Charges of static electricity can accumulate on a person and on explosive materiel. Black powder is especially sensitive to static charges. Static electricity is also considered a serious hazard to certain exposed explosives, dust-and-air mixtures, flammable vapor-and-air mixtures, and electrically actuated devices. In these circumstances, electrical equipment must not be used. TM 9-1300-206, Appendix B, and TB 385-4 give guidance on the wear, use, and testing of conductive and spark-proof footwear.

Ammunition Tools and Equipment

A wide variety of tools and equipment is used in ammunition maintenance, care, and preservation, as well as in storage operations. These range from simple hand tools, such as hammers and screwdrivers, to specialized hand tools, such as banding equipment. They may also be sophisticated machine tools that are manufactured for the sole purpose of maintaining ammunition. These tools are called APE. All APE is listed in TM 43-0001-47.

Although standard hand tools are widely used by ammunition personnel, there is a special category of hand tools that is manufactured from nonsparking materials. These tools are to be used when working with or near exposed explosives. They are made of such materials as bronze, lead, beryllium, K-monel, or polymers. Specialized materials, such as copper wool (instead of flammable steel wool) and nonflammable solvents, are often used with nonsparking tools. Such hand tools should be used for repair work in buildings that may contain exposed explosives or hazardous concentrations of flammable gases or vapors. Hand tools and other implements used in the vicinity of hazardous materials must be handled carefully and kept clean. When iron or steel hand tools are required, the immediate area should be free of explosives and other highly combustible materials.

Ammunition tools and equipment are designed to be safe when operated in a prescribed manner and when properly maintained. The problems associated with tools and equipment used in the maintenance of ammunition are usually the result of operator misuse or error. All training programs must stress instruction on the proper use and maintenance of tools. Supervisors must continuously inspect the condition of tools and equipment and ensure that spot corrections are made.

Materials Handling Equipment and Lifting Devices

MHE is equipment that helps personnel store, handle, and ship ammuniton. Included are forklift trucks, towing tractors, cranes, pallet jacks, platform trucks, and conveyor systems. Forklift trucks and cranes are the most common MHE used in ammunition units. Forklift trucks range from the 4,000-pound warehouse model to the 6,000-pound rough-terrain, variable-reach forklift that is standard TOE issue in all ammunition units. Cranes vary in size from the standard 7.5-ton model used in DS units to the 65-ton model used in GS units.

Due to the limited field of vision of the operator (even more limited when the MHE is moving a load), there is one very important safety precaution to take when working around or with forklift trucks and cranes. That precaution is that the MHE should never be operated without ground guides and seat belts. Also, persons other than ground guides should assume that the operator cannot see them and should stay out of the area where the MHE is operating. Forklifts require one ground guide and cranes require two. Personnel shortages have prompted supervisors and crew chiefs to violate this rule, often a disastrous mistake.

Size and load limits for MHE must be established and enforced, and operators must be aware of the danger and responsibility involved. The following basic rules should be observed:

- Keep hazardous material moving uniformly through the process steps.
- Minimize rehandling.
- Eliminate heavy manual lifting.
- Reduce transportation distances whenever possible.
- Provide special handling equipment where practicable.

Pallet jacks and conveyors present special hazards to all personnel. Pallet jacks must be handled with care. Inexperienced personnel may not realize how hard it is to stop a moving pallet jack when it is loaded with a l-ton pallet. Conveyors are a danger because they may have heavy ammunition boxes moving rapidly along them. Because of a shortage of stands (supports), personnel may mistakenly use ammunition boxes as substitute stands. Boxes should not be used because they are unstable and might overturn.

A lifting device is any device or component used to raise, lower, hold, position, or pull a load from one location to another. Examples are forklift trucks, cranes, and manual and motorized pallet jacks. Every lifting device has a load rating. The load rating is the maximum authorized load that a particular lifting device is allowed to lift. The load rating is established through local testing. However, it must not exceed the manufacturer's rated load.

The manufacturer's rated load is the maximum load that a piece of equipment or its accessories is allowed to lift. The manufacturer's rated load is shown on the equipment capacity data plate or is stated in the operating instructions. An inspection is performed by maintenance personnel after initial receipt to ensure that the MHE has applicable load instructions. Refer to TB 43-0142 for further information.

Requirements of the Occupational Safety and Health Act (OSHA) of 1970 govern inspecting and testing of lifting devices. These requirements apply to HQ DA and to major commands, subordinate commands, installations, and other activities that report directly to HQ DA. For detailed guidance on the OSHA, refer to TB 43-0142.

Operator monitoring is essential for correct lifting-device use. The equipment operator, in conjunction with the safety officer, must ensure the following:

- Operator selection and training programs are effective. Operators must be carefully selected, thoroughly trained, and tested before they are permitted to operate powered MHE under actual working conditions.
- A maintenance inspection or testing program is conducted on all lifting devices. All MHE are inspected daily. Lifting devices are inspected prior to use.
- Lifting devices that fail inspections and appropriate tests are removed from service immediately.
- Load tests are performed after disassembly, overhaul, or replacement of any part of the load-bearing system. These tests must be performed before the system is returned to service.

The chief of the organization responsible for inspection, test, and maintenance must ensure that only qualified personnel are assigned to inspect, test, and maintain lifting devices. Historical records for each item should be initiated and maintained properly. Tests are scheduled using DD Form 314 or DA Form 2409, or facsimile-formatted paper documents. If automatic data processing services are available, the records may be automated. Historical records include the following information:

- Nomenclature.
- Identifying markings.
- Acceptance certification (test operators and test directors sign appropriate spaces on forms).
- Location.
- Schedule for, and record of, periodic inspections.
- Schedule for tests and record of results.
- Schedule for maintenance services.
- Record of parts replaced.
- Any additional identification or safe operation data.

A marking system according to AR 746-1 and this manual should be established for all equipment. The load rating and the date of the next test should be stenciled on the equipment or put on tags and attached to the crane boom and to the basic unit. Hoists, chains, slings, and hooks must be marked or a tag attached to show the item identification number, load rating, and the next periodic inspection or test date. A-frames, shop-floor cranes, hoist beams, jacks, and safety stands must be stenciled or have a tag attached with the load rating and the date of the next inspection. Forklifts must be stenciled or have a tag attached on the side of the mast, to the operator's left, with the load rating and the date of the next periodic inspection. Under no circumstances may these markings or tags be painted over or removed except for maintenance, testing, or to change the equipment's rated load. In these instances, the item must be retagged or restenciled.

A maintenance inspection or test should be performed when the equipment is received and at prescribed intervals thereafter. Preventive maintenance should be scheduled and performed according to pertinent technical publications. Test loads for all types of cranes and hoists are made using weights that

may be built locally, by using a calibrated load indicator, a dynamometer, or any available item of the proper weight. All load-testing devices must have a valid calibration label displayed in a conspicuous place. Attachments, such as slings, chains, and spreader bars, may be tested together. Test loads for forklift trucks are made using pallet loads that correspond to the manufacturer's rated load data and supplemented by factors stated in the operator's manual for the vehicle.

Protective Clothing

Individual protective clothing and equipment should be used as appropriate to enhance safe operations. Safety equipment must be in good working order. The user should understand how to use and maintain it. Maintenance of safety equipment, in addition to ensuring proper functioning and use, prolongs the useful life of the equipment and of the user. For further information on the use and availability of protective clothing and equipment, refer to DA Pamphlet 385-3 and AR 385-10.

MAINTENANCE OPERATIONS

Protection from lightning is an essential part of ammunition maintenance operations. Lightning rods are easy to construct in the field. Refer to TM 9-1300-206. They should be inspected visually semiannually. The system should be tested annually according to TM 9-1300-206.

Other hazards associated with ammunition maintenance include high-pressure air, vapors, and toxic fumes. While high-pressure air is not particularly dangerous to ammunition, using high-pressure air can cause an explosion, To prevent this, refer to the appropriate operator's manual. Vapors and toxic fumes are hazardous if there is not enough ventilation.

RISK ASSESSMENT AND MANAGEMENT

Personnel responsible for ammunition must be reminded continually that their safety, as well as that of others, depends upon the care they use in performing their assigned duties. They must ensure the following:

- The minimum number of personnel are exposed for the minimum amount of time to the smallest quantities of explosives consistent with safety and efficiency.
- Only required personnel work on an operation.
- Safety precautions are observed and enforced rigorously.
- Careless workers are disciplined and careful workers are rewarded.
- No unauthorized operations are performed.
- All operations are supervised properly.
- Tasks not necessary to an explosive operation are not performed within the immediate vicinity of the hazard.
- Unnecessary personnel are prohibited from visiting the operation.
- Where it is essential to perform concurrent operations in a single building or field site, the layout of operations is planned to separate dissimilar operations to prevent propagation of fire or explosion. Such operations shall be protected by dividing walls, barricades, or other means to minimize personnel exposure.

To ensure a safe operation, individuals must be properly trained before being assigned to a particular task. Periodic training sessions and briefings by the commander or the supervisor are effective methods of keeping the safety awareness level high,

Safety education and training must include those individuals of outside organizations who support the ammunition unit. For example, truck drivers of a supporting transportation unit, terminal service unit personnel, crews of aircraft and of water vessels, and the combat user should all be included in the safety training program. Coordinating the unit's safety training with supported and supporting units should enhance safe operations and mission accomplishment as well. The external safety SOP prepared by the ammunition unit should be provided to these units. Refer to AR 385-40 for accident reporting procedures.

REPORTS OF AMMUNITION AND EXPLOSIVE MALFUNCTIONS

A malfunction is the failure of an ammunition item to function as expected when fired, launched, tactically employed, or subjected to functional tests. Malfunctions include abnormal or premature functioning of explosive ammunition items when normally handled, maintained, stored, transported, and tactically deployed. Malfunctions do not include accidents or incidents resulting from negligence, malpractice, vehicular accidents, fires, and so on.

When there is a malfunction, that lot of ammunition is suspended for use (based on METT-T). The

commander of the using unit immediately reports all available facts to the ammunition officer of the issuing unit. At the same time, immediate action is taken to ensure that all of the remaining rounds and any fragments or residue from the malfunctioning round are kept until disposition is indicated by the investigating officer. This may not be required if, in the opinion of the local officer, the preservation or shipment of such materiel could endanger life or property. All ammunition malfunctions are investigated, and preliminary as well as detailed written reports are submitted according to AR 75-1.

FIRE PLAN

Each installation, activity, or field storage area storing or handling ammunition must have an effective safety program to help prevent and fight fires. Considerable attention must be given to fire hazards when establishing an ammunition storage site. Vegetation control is critical in reducing fire hazards. Smoking areas must be controlled. Flame-producing devices or matches are prohibited around or near ammunition and explosive operations, including explosive-laden vehicles. There must be an up-to-date fire plan for each ammunition storage area. The commander appoints a qualified fire marshal who administers the program. The fire marshal also reviews all plans and SOPs for the placement of equipment in field storage sites, changes of work processes, and the detection and correction of fire hazards before ammunition operations are conducted.

A detailed fire plan must be prepared, The overall plan should describe the emergency function of each section, activity, or supporting outside agency. The details of the plan may vary to suit the individual installation or field activity. The plan should also specify responsible personnel and the organization of fire-fighting teams, to include team members, team alternates, equipment, and fire-fighting training requirements. The responsibilities of everyone concerned should be described. At least the following procedures or methods should be included in the fire plan:

- Procedures for reporting a fire.
- Procedures for an orderly evacuation of nonessential personnel.
- Procedures to tell nearby commands of the impending danger.
- Methods for extinguishing or controlling the fire.

Every attempt must be made to control or contain a fire to prevent the loss of ammunition. Although fire fighting is the responsibility of engineers, unit personnel must be trained to act quickly and to extinguish and/or control the fire. Instructions to supervisors and personnel should include steps that increase fire safety. Each person in a supervisory position should be thoroughly familiar with the fire hazards associated with an operation. Instructions to personnel working in the storage site must include the proper manner of giving the alarm. They must also be familiar with methods used to extinguish ammunition fires.

A detailed map showing the types of ammunition stored at different locations and any specific hazards associated with the ammunition should also be prepared. Copies of this map should be made available to supporting fire-fighting personnel when they arrive at the ammunition storage site. If the tactical situation allows, all storage locations should be marked with the appropriate fire symbol. See TM 9-1300-206 for further guidance on fire safety requirements (such as symbols).

ACCIDENT/INCIDENT CONTROL PLAN

Each activity handling or storing ammunition must develop plans for controlling accidents and incidents. These plans are part of the command accident/incident control plan. The accident/incident control plan includes procedures for reporting accidents, getting assistance from other emergency forces, and supporting other military and civilian agencies in the area. The plan also provides training plans so that the personnel assigned to the teams remain proficient in individual and team duties. Such training includes simulated emergency exercises to maintain team efficiency and readiness. The accident/incident control plan provides for the following:

- Establishment of emergency technical escorts.
- Radiation controls.
- Munitions safety control.
- Disarmament.
- Fire fighting.
- Decontamination teams within the organization.

In addition to the safety hazards associated with the ammunition items in storage, protection from the elements and physical security must be considered. Items must also be stored where they are easily accessible to ship, issue, and move.

GLOSSARY

AAT ammunition accountability team

ABL ammunition basic load

ADP automatic data processing

ADPE automatic data processing equipment

ALB AirLand Battle

AMC (United States) Army Materiel Command

AMCCOM (United States Army) Armament, Munitions, and Chemical Command

APE ammunition-peculiar equipment

AR Army regulation

ASG area support group

ASL authorized stockage list

ASP ammunition supply point

ATP ammunition transfer point

BAO brigade ammunition officer

BCM binary chemical munition

bn battalion

BOE Bureau of Explosives

BSA brigade support area

C^2 command and control

C^3 command, control, and communications

CARC chemical-agent-resistant coating

CCL combat configured load

CEA captured enemy ammunition

CEOI Communication-Electronics Operation Instructions

CLT cellular logistics team

CMMC corps materiel management center

COMMZ communications zone

COMSEC communications security

CONUS continental United States

COOP Continuity of Operations Plan

COSCOM corps support command

CP command post

CS combat support

CSA corps storage area

CSB corps support battalion

CSG corps support group

CSR controlled supply rate

CSS combat service support

CZ combat zone

DA Department of the Army

DAC Department of the Army civilian

DAMMS-R DA Movement Management System—Revised

DAO division ammunition officer

DARCOM (United States Army) Development and Readiness Command

DD Department of Defense (for forms)

DIC document identifier code

DISCOM division support command

DMWR depot maintenance work requirement

DOD Department of Defense

DODAC Department of Defense Ammunition Code

DODIC Department of Defense identification code

DS direct support

DSA division support area

DS/S Desert Shield/Storm

DU depleted uranium

EAC echelons above corps

EOD explosive ordnance disposal

EODCT explosive ordnance disposal control team

EPW enemy prisoners of war

FM field manual

FSB forward support battalion

FSC Federal supply classification

FSU field storage unit

G2 assistant chief of staff, G2 (intelligence)

G4 assistant chief of staff, G4 (logistics)

G5 assistant chief of staff, G5 (civil affairs)

GMLR guided missile and large rocket

GS general support

GTA graphic training aid

HEMTT heavy-expanded mobility tactical truck

HHC headquarters and headquarters company

HHD headquarters and headquarters detachment

HNS host-nation support

HQ headquarters

IED improvised explosive device

ISO International Standards Organization

LIC low-intensity conflict

LOC logistics operations center

LOI letters of instruction

LOTS logistics-over-the-shore operations

MCC movement control center

MCT movement control team

METT-T mission, enemy, terrain, troops, and time available

MHE materials handling equipment

MICOM (United States Army) Missile Command

MLRS Multiple-Launch Rocket System

MMC materiel management center

MOADS Maneuver-Oriented Ammunition Distribution System

MOPP mission-oriented protective posture

MRO materiel release order

MP military police

MSE mobile subscriber equipment

MSR main supply route

NBC nuclear, biological, chemical

NCO noncommissioned officer

NICP national inventory control point

NSN national stock number

OCONUS outside continental United States

OSHA Occupational Safety and Health Act

PLL prescribed load list

PLS palletized load system

POD port of debarkation

POL petroleum, oils, and lubricants

PWP plasticized white phosphorous

PWRS prepositioned war reserve stocks

QA/QC quality assurance/quality control

QASAS quality assurance specialists (ammunition surveillance)

RAO regiment ammunition officer

ROD report of discrepancy

S1 adjutant (United States Army)

S2 intelligence officer (United States Army)

S3 operations and training officer (United States Army)

S4 supply officer (United States Army)

SAAS Standard Army Ammunition System

SB supply bulletin

SC sideless container

SF standard form

SOP standing operating procedure

SPBS-R Standard Property Book System—Revised

SSA supply support activity

STAMIS Standard Automated Management Information System

STANAG standardization agreement

STON short ton

TA theater army

TAACOM Theater Army Area Command

TAMMC theater army materiel management center

TB technical bulletin

TCMD transportation control and movement document

TM technical manual

TOE table(s) of organization and equipment

TRADOC (United States Army) Training and Doctrine Command

TRANSCOM transportation command

TSA theater storage area

TTP trailer transfer point

ULLS unit level logistics system

US United States (of America)

USAOMMCS United States Army Ordnance Missile and Munitions Center and School

UXO unexploded ordnance

WARS Worldwide Ammunition Reporting System

WCTO war or contingency tactical operation

WHNS wartime host-nation support

WP white phosphorous

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INDEX

accident/incident control plan, E-7

AirLand Battle (ALB) doctrine, viii

ALB. *See* AirLand Battle doctrine.

ammunition accountability team. *See* wartime host-nation support ammunition units.

ammunition storage
- ammunition drawings used for, 5-1
- checklist, B-2
- dunnage requirements for, 5-1
- hazards, E-3
- palletizing ammunition for, 5-2
- segregating ammunition for, 5-2
- stacking ammunition for, 5-1, 5-2
- of suspended ammunition, 5-6
- of unserviceable ammunition, 5-6

ammunition supply operations
- issues, 6-3 through 6-5
- receipts, 6-1 through 6-3
- shipments, 6-5 through 6-8
- turn-ins, 6-3

ammunition supply point (ASP)
- location of, 2-2
- site selection for, 2-4
- stockage of, 2-2
- type, number, size, and stockage objective of, 2-2

ammunition transfer point (ATP)
- ammunition requirements for, 2-2, 2-3
- DAO representative at, 2-3
- location of, 2-2, 2-3
- operated by DS company, vi, 1-10, 2-3
- operated in division area, 1-10, 2-2
- security at, 2-3
- site selection for, 2-4
- stockage objective for, 2-4
- as supply facility, 2-2
- as temporary location, 2-2
- units supported by, 2-3

area layout plan, 2-6
- designated sections for, 2-7
- fundamental rules for, 2-6
- overlays used in, 2-6
- purpose of, 2-6
- storage plan as part of, 2-5, 2-6
- storage sections as part of, 2-6

ASP. *See* ammunition supply point (ASP).

ATP. *See* ammunition transfer point (ATP).

BCM. *See* chemical munitions.

captured enemy ammunition (CEA)
- destroying, 5-7
- inspecting, 5-7
- managed by SAAS, 4-10, 5-7
- reporting, 5-7
- retrograding, 5-7
- storing, 5-7
- unitary munitions as, 5-8

care and preservation maintenance line
- inspecting items at, D-1
- layout of, D-2
- repairs performed at, D-3

CCL. *See* combat configured loads (CCLs).

CEA. *See* captured enemy ammunition (CEA).

cellular logistics teams (CLTs), vi. *See also* wartime host-nation support ammunition units.
- categories of, 1-6
- functions of, 1-6
- as managers of WHNS, 1-6

chemical munitions, vi
assembly of, 5-8
security of, 5-9
shipping, 5-8
special handling procedures for, 5-8, 5-9
storing, 5-8

CLT. *See* cellular logistics teams (CLTs).

combat configured loads (CCLs), vi, 1-10, 2-2, 2-7

communications
communications-electronics operation instructions (CEOIs), 4-3, 4-7
communications security (COMSEC), 4-7
flow between units, 4-3 through 4-6
means of, 4-3, 4-7
mobile subscriber equipment, 4-3 through 4-6
personnel, 3-7, 4-3
security, 4-7

contaminated ammunition
decontaminating, C-2
issuing, C-2
transporting, C-2

contingency plan, 3-2 through 3-4

conventional ammunition ordnance companies
GS ammunition company (TOE 09488L000), 1-1, 1-2, 1-4
DS ammunition company (TOE 09483L000), 1-2, 1-4 through 1-6

conventional ammunition support units
ammunition ordnance battalion (DS/GS) (TOE 09666L000), 1-2, 1-3
ammunition ordnance group (DS/GS) (TOE 09662L000), 1-2
corps support battalion (TOE 63426L000), 1-2, 1-4
corps support group (TOE 63422L000), 1-3
EOD units. *See* EOD units.
MP heavy-security company (TOE 19497L000), 1-2, 1-4

corps storage area (CSA)
location of, 2-2
operation of, 2-2
site selection for, 2-4
stockage of, 2-2
type, number, size, and stockage objective of, 2-2

CSA. *See* corps storage area (CSA).

damage control plan, 4-8, 4-9

defense plan, 4-8

defense planning, 4-7, 4-8

depleted uranium, D-1, E-3

destruction plan, 5-6

EOD units
C^2 of, 1-11
capabilities of, 1-11
EOD augmentation response team (TOE 09527LC00), 1-11
EOD control team (EODCT) (TOE 09527LA00), 1-2, 1-4
EOD detachments (TOE 09527LB00), 1-11

Explosive Safety Program, 5-4

field storage area
ASP as, 2-2
CSA as, 2-2
site selection for, 2-4
size of, 2-3
storage systems used at, 2-3
storing assets at, 2-3
TSA as, 2-1

field storage systems
area storage system, 2-3
combination area and roadside storage system, 2-4
modular storage system, 2-4
as part of storage plan, 2-5
roadside storage system, 2-3
urban/village built-up storage system, 2-4

fire plan, E-7

fixed-site storage area, 2-4

GMLR. *See* guided missile and large rocket (GMLR) report.

guided missile and large rocket (GMLR) report, 4-10, 4-11

host-nation support (HNS)
factors to consider when employing, 4-10
local civilian personnel used as, 4-9
means of finding, 4-9
possible occupations for, 4-9
recruiting civilians as, 4-9
static and mobile, 4-9
supervision of, 4-9

inspections
CEA, 5-7
GMLR, 5-5
MHE and lifting devices, E-4 through E-6
physical defect standards for, 5-4
salvage material, 5-8
serviceability standards for, 5-4
surveillance, 5-4
turn-ins, D-1
unserviceable ammunition, 5-6
vehicle, 6-2

issues. *See* ammunition supply operations.

LIC. *See* low-intensity conflict (LIC).

lift capabilities, 1-1, 1-4, 2-3

low-intensity conflict (LIC), vi, viii

maintenance, 5-2. *See also* care and preservation maintenance line.
categories of, 5-3
checklist, B-2, B-3
levels of, 5-2
planning, 5-2
SOP, 5-3
unit responsibilities for, 5-2, 5-3

Maneuver-Oriented Ammunition Distribution System enhanced by palletized load system (MOADS-PLS), vi. *See also* palletized load system (PLS).

Maneuver-Oriented Ammunition Distribution System (MOADS), vi
at ASP, 2-2
concept of operation for, 1-9
at CSA, 2-2
in theater of operations, 1-9, 1-10
at TSA, 2-1

manual stock accounting system, 4-10. *See also* Standard Army Ammunition System (SAAS).
stock accounting documents for, 4-12
stock record set for, 4-12
storage documents for, 4-12

MCC. *See* movement control center (MCC).

MCT. *See* movement control team (MCT).

MOADS-PLS. *See* Maneuver-Oriented Ammunition Distribution System enhanced by palletized load system (MOADS-PLS).

mobile subscriber equipment (MSE), 4-4 through 4-6. *See also* communications.

movement control center (MCC), 1-2, 4-2, 6-6

movement control team (MCT), 1-2, 3-3, 4-2, 6-6

night operations, 5-9

palletized load system (PLS), A-1 through A-7

PLS. *See* palletized load system (PLS).

prepackaging, 3-3

Quality Assurance, Ammunition Surveillance Program, 5-3. *See also* surveillance.

quality assurance specialists (ammunition surveillance) (QASASs), 5-3

receipts. *See* ammunition supply operations.

reconnaissance. *See* site selection.

retrograde operations, 3-3, 3-4

rewarehousing, 5-9

SAAS. *See* Standard Army Ammunition System (SAAS).

safety, 2-4, 2-6, E-1 through E-7
checklist, B-3

salvage material, 5-7
inspecting, 5-8
recording, 5-8

semifixed storage area, 2-4

shipments. *See* ammunition supply operations.

site selection
alternate site, 2-4
primary site, 2-4
reconnaissance, 2-4, 4-2
tactical conditions, 2-4

sling-out operations, 5-9
sling-out area, 2-7, 5-9

STANAG. *See* standardization agreements (STANAGs).

Standard Army Ammunition System (SAAS)
levels of, 4-11
management of, 4-10
purpose of, 4-10
references for, 4-11

Standard Automated Management Information System (STAMIS), 4-10. *See also* Standard Army Ammunition System (SAAS).

standardization agreements (STANAGs), vii, 1-6, 1-9

stand-down operation, 3-4
checklist, B-3

stock accounting documents. *See* manual stock accounting system.

stock record set. *See* manual stock accounting system.

storage. *See* ammunition storage.

storage documents. *See* manual stock accounting system.

storage plan. *See* area layout plan.

storage systems. *See* field storage systems.

supply operations. *See* ammunition supply operations.

surveillance
functions, 5-3
inspections, 5-4
records and reports, 5-5
standards, 5-4

suspended ammunition
marking, 5-7
problems that result in, 5-6
reports required for, 5-7
storing, 5-6, 5-7

tactical military operations
background, 4-1
ensuring success of, 4-1

theater storage area (TSA)
location of, 2-1
operation of, 2-1
site selection for, 2-4
stockage of, 2-1
type, number, size, and stockage objective of, 2-1

threat forces
developing countries as, ix
warfare assets of, ix

trailer transfer point (TTP), 6-6

training
checklists, B-1 through B-3
communications, 4-3, 4-7
peacetime, 1-10
QASAS, 5-3

transportation, 3-3, 4-2, E-3. *See also* movement control center (MCC) and movement control team (MCT).

TSA. *See* theater storage area (TSA).

TTP. *See* trailer transfer point (TTP).

turn-ins. *See* ammunition supply operations.

unexploded ordnance (UXO), E-3

unit movement, 3-4
advance party, 4-2
rear party, 4-3
secure new area, 4-2,
set up new area, 4-3
warning order, 3-4, 4-2

unserviceable ammunition
abandoned ammunition as, 5-6
reporting, 5-6
segregating, 5-6
unit turn-ins as, 5-6

uranium. *See* depleted uranium.

UXO. *See* unexploded ordnance (UXO).

war or contingency tactical operation (WCTO), vi, 3-1, 3-2

WARS. *See* Worldwide Ammunition Reporting System.

wartime host-nation support ammunition units. *See also* cellular logistics teams (CLTs).
ammunition ordnance battalion (WHNS) (TOE 09574LA00), 1-7, 1-8
ammunition ordnance company (WHNS) (TOE 09574LB00), 1-7 through 1-9
ammunition accountability team (WHNS), 1-9
command of, 1-6
management of, 1-6

WCTO. *See* war or contingency tactical operation (WCTO).

Worldwide Ammunition Reporting System (WARS), 4-10, 4-11